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November 23, 1998

VIA HAND DELIVERY
Ms. Magalie Roman Salas, Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Amended Petition For Rule Making of
PetroCom License Corporation
MDS/ITFS Licensing in the Gulf of Mexico
RM-PRM96MM

Dear Ms. Salas:

Submitted herewith on behalf of PetroCom License Corporation, in accordance with Section 1.401 of the Commission's Rules, are an original and four copies of its Amended Petition For Rule Making with respect to amending Parts 21 and 74 of the Commission's Rules with regard to licensing in the Multipoint Distribution Service and Instructional Television Fixed Service for the Gulf of Mexico.

Please address questions concerning this filing to the undersigned.

Very truly yours,

Richard S. Myers

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cc: (per certificate of service)

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 21 and 74 of	)	
the Commission's Rules with regard to	)	RM-PRM96MM
Licensing in the Multipoint Distribution	)	
Service and the Instructional Television	)	
Fixed Service for the Gulf of Mexico	)	

To: The Commission

AMENDED PETITION FOR RULE MAKING OF PETROCOM LICENSE CORPORATION

PETROCOM LICENSE CORPORATION

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Date: November 23, 1998

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Attachment: Proposed Rules
Certificate of Service

SUMMARY

PetroCom License Corporation requests that the Commission expeditiously commence a rule making to amend Parts 21 and 74 of its rules to permit licensing of Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") frequencies on a wide-area basis in the Gulf of Mexico ("Gulf"). The Gulf should be licensed as a BTA-like service area. In general, the Commission's current rules will work for MDS/ITFS systems in the Gulf; however, a few modifications are necessary due to the Gulf's unique characteristics. To promote sufficient competition in the Gulf, two licenses should be authorized. The Commission should adopt eligibility restrictions to avoid excessive concentration of licenses. In addition, to further the Commission's policy of encouraging the participation of small businesses in the licensing process, one of the two licenses should be set aside for small businesses. Eligibility for the set aside license should be limited to entities whose average gross revenues do not exceed $25 million and whose average total assets do not exceed $75 million for the past three years. Only the set aside license should be auctioned at this time, and the Commission should review whether to auction the second license in five years. Due to the unique nature of the Gulf, a decision on partitioning of licenses also should be deferred. Further, due to the lack of incumbent MDS and ITFS licensees in the Gulf, the licensing process should be streamlined so that the Gulf licensee, after receiving its BTA authorization, can construct MDS stations anywhere in the Gulf, so long as the Gulf licensee's operations do not exceed a signal strength of -75 dBw/m^2 along the boundary between the Gulf licensee and a land licensee.

The technical rules do not require substantial changes. However, due to the unique nature of the Gulf, a few changes are necessary. To accommodate the concerns of land-based MDS licensees in areas contiguous to the Gulf, the signal strength of the Gulf licensee at the BTA border should never exceed -75 dBw/m^2. Gulf systems generally will have to utilize the limited space of oil platforms, requiring small antennas and necessitating an increase in the permitted transmitter power. The Gulf is a sparsely populated area, with rigid limitations regarding the possible placement of response stations. Rules regarding response service areas in the Gulf therefore should be simplified.

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Licensing in the Multipoint Distribution	)	
Service and the Instructional Television	)	
Fixed Service for the Gulf of Mexico	)	

To: The Commission

AMENDED PETITION FOR RULE MAKING OF PETROCOM LICENSE CORPORATION

PetroCom License Corporation ("PetroCom"), by its attorneys and pursuant to Section 1.401 of the Commission's rules, respectfully submits this Amended Petition for Rule Making ("Amended Petition") which amends the Petition for Rule Making ("Petition") filed by Gulf Coast MDS Service Company ("Gulf Coast") on May 21, 1996.[1] This Amended Petition proposes amendments to Parts 21 and 74 of the Commission's Rules for the licensing of Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") frequencies on a wide-area basis in the Gulf of Mexico ("Gulf").

I. Background

1. PetroCom desires to provide fixed, broadband digital communication services to the oil and gas industry in the Gulf using spectrum in the 2500-2686 MHz and 2150-2162 MHz

[1] PetroCom is the pro forma assignee of Petroleum Communications, Inc. which, in turn, was the pro forma assignee of Gulf Coast as a result of a merger. Accordingly, Gulf Coast and its successors in interest will be referred to collectively as "PetroCom" in this Amended Petition.

bands. In pursuit of this goal, PetroCom applied for developmental authority to construct and operate a digital microwave network on platforms in the Gulf using MDS and ITFS frequencies. The developmental authority was granted on January 23, 1997, and renewed on May 1, 1998.

2. The purpose of the developmental authority is to research the technical and commercial viability of a wireless local loop ("WLL") service in the Gulf. On January 23, 1998, PetroCom submitted an MDS Development Report ("Report") to the Video Services Division of the Mass Media Bureau. In the Report, PetroCom concluded that WLL service can be successfully deployed in the Gulf using MDS and ITFS frequencies, and that service in these bands will be spectrum efficient. Additional testing to refine the operation of the WLL system is underway.

3. The Attachment hereto contains proposed rules to govern the licensing and operation of systems using MDS and ITFS frequencies in the Gulf on a wide-area basis. The Attachment incorporates the Commission's newly-adopted rules that allow for two-way transmissions on MDS and ITFS frequencies,[2] with rules proposed in this Amended Petition shown as shaded text. The proposed rules are described below.

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[2] In the Matter of Amendments of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, MM Docket No. 97-217, Report and Order, FCC 98-231 (released Sept. 25, 1998) [hereinafter Two-Way Order or "Two-Way MDS Proceeding"].

II. Proposed Rules

A. Service Rules

1. Permitted Use

4. In the Two-Way Order, the Commission redefined MDS as: "A domestic public radio service rendered on microwave frequencies from one or more fixed stations transmitting to multiple receiving facilities located at fixed points. MDS also may encompass transmissions from response stations to response station hubs or associated fixed stations."[3] A signal booster station is defined as "[a]n MDS station licensed for use in accordance with §21.913 that operates on one or more MDS channels [which may] retransmit the signals of one or more MDS stations and/or originate transmissions on MDS channels."[4] Accordingly, a "signal booster station" is an "MDS station" and, therefore, should be permitted to engage in two-way transmissions with "response stations" as well as with other "MDS stations." This is an important point for PetroCom's system which does not utilize "response station hubs" to connect its response stations or booster stations with MDS stations for upstream transmissions. To ensure clarity, PetroCom proposes modifications to: (i) Section 21.903 to include "associated MDS stations" in the permissible service rules; and (ii) Section 21.913 to provide that MDS booster stations in the Gulf may transmit and receive signals to and from MDS stations (including booster stations) and may reuse channels or use new channels to repeat the signal of MDS response stations. These modifications will make Sections 21.903 and 21.913 consistent with Section 21.2.[5]

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[3] 47 C.F.R. § 21.2.

[4] Id.

[5] Attachment at A-7 (proposed §21.903) and A-19 (proposed §21.913).

2. Definition of Service Area

5. The Petition proposed that the Commission designate the Gulf as a BTA-like service area for MDS. While PetroCom continues to support the BTA-like service area designation for the Gulf, PetroCom suggests that the final rules specifically describe the boundaries of the service area. Along the coast line from the southernmost tip of Texas to the southernmost tip of Florida, the boundary between the Gulf MDS licensee and the land-based MDS licensees should be the county lines of the adjacent land BTAs.[6] This definition of the inner boundary of the Gulf service area is consistent with the Commission's MDS rules which base BTA boundaries on market areas defined by Rand McNally, which follow county lines.[7]

6. The outer, seaward boundary of the Gulf service area should be coterminous with the southern boundary of the Exclusive Economic Zone ("EEZ") defined by a 1983 presidential proclamation.[8] The EEZ extends approximately 200 nautical miles from the baseline from which the breadth of the territorial sea is measured. The area beyond this point is international waters. The southern boundary of the EEZ is therefore the logical boundary of the Gulf service area.

3. Two Licenses

7. To ensure technical viability of the proposed service, PetroCom proposes two licenses, Block A and Block B, covering the entire Gulf service area. WLL service requires large

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[6] County lines in Texas and Florida extend 3 marine leagues (9 nautical miles) from the coastline. Fla. Const., Art. II § 1(a); Tx. Nat. Res §§ 11.012(a), 11.013(a) (1996). Alabama, Mississippi and Louisiana county lines extend 3 geographic miles from the coastline. United States v. Louisiana, 470 U.S. 93, 95 (1984).

[7] 47 C.F.R. § 21.2.

[8] See Proclamation No. 5030, 48 Fed. Reg. 10,601 (1983).

blocks of contiguous spectrum. For this reason, MDS/ITFS spectrum in the Gulf should be combined and divided into two blocks. The proposed Block A license consists of the spectrum from 2500-2547 MHz, 2593-2639 MHz and 2150-2156 MHz. The proposed Block B license consists of the spectrum from 2547-2593 MHz, 2639-2686 MHz and 2156-2162 MHz. To ensure efficient use this spectrum, a licensee should have the flexibility to channelize the spectrum in any manner that does not cause interference.

4. License Allocation

8. If the Commission receives mutually exclusive applications for the Gulf MDS licenses, it should employ a simultaneous multiple round auction to award the licenses. Experience has demonstrated that this method is a proven way to place spectrum in the hands of those who value it the most and will provide the public with rapid access to new services.

9. In the auction for MDS licenses for land BTAs, the Commission declined to use spectrum set asides to facilitate the acquisition of spectrum by small businesses, citing differences between those licenses and previous PCS licenses for which set asides were used. The differences cited by the Commission were that MDS is a heavily encumbered service unlike PCS, and unlike the PCS auction, the purposes of the MDS auction did not include the development of a new service.[9]

10. In these respects, the Gulf MDS auction will more closely resemble the PCS auction than the land MDS auction. The Gulf spectrum is not encumbered by existing licensees.

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[9] In the Matter of Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act - Competitive Bidding, MM Docket No. 94-131 and PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9663-64 (1995) [hereinafter Report and Order].

Further, a goal of the Gulf auction is to stimulate the development of a new WLL service in the Gulf. For these reasons, it is appropriate to set aside the Block A license described above for small businesses.[10]

11. The Commission has the authority to establish the definition of a small business in the context of each service, taking into account the characteristics and requirements of that service.[11] In the MDS service, the definition of a small business is an entity that, together with its affiliates, has annual average gross revenues for the three preceding calendar years not in excess of $40 million.[12] This $40 million standard was also used in broadband PCS. Since the Gulf license will be authorized under the MDS rules, and further since the Gulf license will be used to provide a new service, the $40 million standard, as in broadband PCS, is an appropriate starting point for defining eligibility for the small business set aside for the Block A license in the Gulf. However, construction of a Gulf MDS system should be significantly less costly than construction of a PCS system or land MDS system. The Gulf has a population of 20,000 while land-based PCS and MDS markets have millions of potential customers resulting in much greater equipment and marketing costs. The $40 million revenue cap should thus be revised downward for the set aside Gulf license (Block A) to $25 million.[13]

12. To discourage large entities from trying to circumvent the $25 million revenue cap, the Commission should also impose an asset cap. A $500 million total asset cap was used in

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[10] Attachment at A-29-31 (proposed §21.960(h)).

[11] 47 C.F.R. § 1.2110(b)(1).

[12] 47 C.F.R. § 21.961(b)(1).

[13] Attachment at A-31 (proposed §21.961(b)(1)).

broadband PCS. A cap of this size was justifiable for PCS auctions which included markets consisting of millions of customers. In contrast, the Gulf market has a much smaller population of only about 20,000. For the Gulf MDS auction, the Commission therefore should adopt a much lower asset cap of $75 million, based on average total assets for the past three years.[14]

13. To further encourage the participation of small businesses in the Gulf auction, the Commission should provide small businesses with a 25% bidding credit for bids placed on the Block B license.

14. Competitive markets are the most direct and reliable means for ensuring that consumers receive efficient communications services at reasonable charges. When granting the Commission authority in Section 309(j)(3) to auction spectrum for the licensing of wireless services, Congress acknowledged the Commission's authority to specify eligibility for such licenses.[15] Congress specifically directed the Commission to exercise that authority so as to promote economic opportunity and competition by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants.[16]

15. Fixed wireless local loop services in the Gulf can be provided over frequencies licensed in the Wireless Communications Service ("WCS")[17] and Local Multipoint Distribution

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[14] Id.

[15] 47 U.S.C. § 309(j)(3).

[16] Id.

[17] See In the Matter of Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service, GN Docket No. 96-228, Report and Order, 12 FCC Rcd 10785, 10807-10808 (1997). The Commission recently proposed to license an additional 1,000 MHz of WCS spectrum in the 47 GHz band. See In the Matter of Amendment to Parts 2, 15, and 97 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, ET Docket No. 94-124;

Service ("LMDS"),[18] which will compete with the wireless local loop services that will be offered over MDS/ITFS frequencies as proposed in this Amended Petition. To fulfill Congress' mandate to promote competition and avoid excessive concentration of licenses, eligibility for the two MDS/ITFS licenses for the Gulf therefore should be limited to applicants that do not already hold Gulf licenses for WCS and LMDS.

16. Only the set aside Block A license for small business should be auctioned, and the Commission should review whether to auction the second Block B license in five years. The Gulf market has grown modestly over the past several years, a situation that is not expected to change for the foreseeable future. Unlike land markets, the demand for wireless services is not increasing at an exponential rate in the Gulf. While PetroCom's developmental operations have demonstrated that a demand exists for WLL service in the Gulf, the Commission should ensure that increasing the number of WLL competitors in the Gulf will not reduce competition.[19] For

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International Harmonization of Frequency Bands Above 40 GHz, RM-8308; Petition of Sky Station International, Inc. for Amendment of the Commission's Rules to Establish Requirements for a Global Stratospheric Telecommunications Service in the 47.2-47.5 GHz and 47.9-48.2 GHz Frequency Bands, RM-8784; Amendment to Part 27 of the Commission's Rules to Revise Rules for Services in the 2.3 GHz Band and to Include Licensing of Services In the 47 GHz Band, WT Docket No. 98-136; Memorandum Opinion and Order on Reconsideration and Notice of Proposed Rulemaking, 1998 FCC LEXIS 3861 (released July 29, 1998).

[18] In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297; Petitions for Reconsideration of the Denial of Applications for Waiver of the Commission's Common Carrier Point-to-Point Microwave Radio Service Rules; Suite 12 Group Petition for Pioneer Preference, PP-22, Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 12545, 12638 (1997). Although the Gulf is designated as a service area for WCS licensing, it is presently not designated as a service area for LMDS licensing.

[19] See, e.g., Martin K. Perry, "Scale Economies, Imperfect Competition and Public Policy," Journal of Industrial Economics, vol. 32 (1984).

this reason, the Commission should auction one MDS license (Block A) in the Gulf, wait 5 years, and then analyze whether the auction of the second MDS license (Block B) will have a positive or negative effect on competition in the Gulf.

5. Partitioning

17. In determining whether to extend to Gulf MDS licensees the partitioning right generally applicable to MDS licensees, the Commission should consider the unique nature of the Gulf. Customers in the Gulf are found on oil platforms, meaning that no customers exist in over 90% of the Gulf. Further, the market is very small in terms of population, only around 20,000. Finally, partitioning rules require that a market be partitioned along geopolitical boundaries.[20] It is unclear what would constitute such a boundary in the Gulf. For these reasons, PetroCom proposes that the Commission at this time defer any decisions regarding whether to apply the MDS partitioning rules to the Gulf.

6. Application Processing Rules

18. An MDS auction winner for a land BTA is issued an authorization after filing a long form application.[21] Subsequently, the holder of a BTA authorization can apply for a station license for each MDS station it wishes to construct within the BTA. These application processing rules protect the incumbent land-based MDS and ITFS licensees against interference. However, there are no incumbent MDS or ITFS licensees in the Gulf. Therefore, the licensing process in the Gulf should be streamlined.

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[20] 47 C.F.R. § 21.931(a)(1).

[21] 47 C.F.R. § 21.956.

19. PetroCom thus proposes that the Gulf authorization permit construction of MDS stations (including booster stations) anywhere within the Gulf, as long as the Gulf licensee's operations do not exceed a signal strength of -75 dBw/m² along the border between it and any land licensee. This proposed signal strength is 2 dB lower than the signal strength at which the land licensee is permitted to operate at the border, thus ensuring that the Gulf licensee will not interfere with land-based systems.[22] A Gulf licensee will therefore not need to file a separate long form application for each proposed MDS station (including booster stations) in its market if the above criteria are met.[23] PetroCom suggests, however, that Gulf licensees still be required to file a certification of completion of construction of MDS stations to ensure that the Commission is informed about the licensee's operations.[24]

B. Technical Rules

1. Maximum Power Levels

20. To facilitate the use of digital equipment, the Commission in the Two-Way MDS Proceeding adopted rule changes with respect to the maximum power levels for transmitters, response stations, response station hubs, and signal booster stations.[25] With the addition of the frequency range for Gulf systems proposed herein, the revised transmitter power rule can be followed for Gulf systems with one major change discussed below in connection with response

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[22] See infra section II.C.2.a. (providing a description of the proposed signal strength rule).

[23] Attachment at A-26 (proposed §21.925) and A-28 (proposed §21.956).

[24] 47 C.F.R. § 21.43(b).

[25] 47 C.F.R. §§ 21.904, 21.909, 21.913.

stations.[26] PetroCom further stresses the importance of allowing operations in excess of the maximum power values upon a showing of no harmful interference to any co-channel and adjacent-channel stations.[27] The Gulf is a vast geographic region that is sparsely populated and not susceptible to the same interference concerns as land-based systems in urban areas, especially since there are no MDS or ITFS incumbent systems in the Gulf. System design is dependent on the availability and location of offshore platforms. In some instances, the proposed maximum power levels may unnecessarily burden system design and operation of MDS systems in the Gulf. Therefore, the Commission should implement rules in a manner that is sufficiently flexible to permit licensees to exceed the maximum power levels upon a showing of no harmful interference.

21. A change to current Section 21.909(g) of the rules is required for response stations used in systems operating in the Gulf. Such stations will utilize oil platforms that generally provide less space for equipment than what is available for land-based systems. The smaller confines of oil platforms thus will require smaller transmitting antennas and higher transmitter powers for response stations. PetroCom proposes a maximum transmitter power of 4 watts for response stations in the Gulf.[28] System operations in the Gulf will still be subject to the interference protection requirements in Section 21.902.

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[26] Attachment at A-3 (proposed §21.107).

[27] 47 C.F.R. §§ 21.904(c), 21.909(g)(2), 22.913(b).

[28] Attachment at A-15 (proposed §21.909(g)(2)).

2. Channelization

22. In the Two-Way MDS Proceeding, the Commission adopted rules that permit subchannelization and superchannelization of MDS channels.[29] Flexible channelization allows for more efficient channel reuse within a given service area. Further, this will permit the utilization of new digital emissions that accommodate higher data rates by using multiple channels within the currently allotted 6 MHz and 125 kHz channels, or by combining channels for using spread spectrum emissions. The needs of industrial users of MDS systems in the Gulf are more demanding than those of households using land-based systems. A Gulf licensee will need flexibility in designing its system to accommodate the changing needs of its industrial customers as well as changing technology. The Commission should thus allow Gulf licensees to subchannelize and superchannelize MDS channels pursuant to rules adopted in the Two-Way Order.[30]

3. Spectral Mask, Frequency Tolerance, Emissions

23. The Commission's current rule specifies maximum attenuation based upon 6 MHz and 125 kHz channels.[31] PetroCom interprets the spectral mask rule adopted in the Two-Way Proceeding (revised rule Section 21.908) as not specifying any particular bandwidth so that a licensee can freely subchannelize and superchannelize spectrum as long as the licensee complies with emissions limitation requirements at the edges of contiguous channels and does not otherwise cause interference to incumbents and adjacent market licensees. This rule is designed to protect

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[29] 47 C.F.R. § 21.905(b).

[30] 47 C.F.R. §§ 21.905(b), 21.909(g)(5).

[31] 47 C.F.R. § 21.908.

incumbent ITFS and MDS licensees. Since there are no incumbent ITFS or MDS licensees in the Gulf, it is appropriate to modify this rule for Gulf licensees such that the Gulf licensee must comply with emission limitation requirements at the edges of the authorized spectrum blocks.[32] This approach will ensure that Gulf licensees can efficiently subchannelize and superchannelize their systems.

24. The Commission's current frequency tolerance rule, which is designed to protect licensees with adjacent spectrum from interference, provides that equipment authorized for use in the specified frequency bands must maintain a frequency tolerance within ± 1 kHz of the assigned frequency.[33] PetroCom interprets this rule to mean, for example, that if a licensee's frequency block is 2500-2547 MHz, then the ±1 kHz frequency tolerance must be maintained at both ends of the licensed frequency block, i.e., within 1 kHz of 2500 MHz and within 1 kHz of 2547 MHz. If the current rule means that the frequency tolerance must be maintained at both ends of each channel used within the frequency band, then a special rule should be adopted for Gulf systems which would apply frequency tolerance requirements to both ends of the license frequency blocks.[34] Since there are no incumbents on the MDS and ITFS frequencies in the Gulf, interference is unlikely to result from the adoption of this rule.

25. The purpose of the emission limitation rule is to prevent interference to adjacent channel licensees. In the Gulf, where a licensee will have large blocks of spectrum for which

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[32] Attachment at A-8 (proposed §21.908(a)(1)).

[33] 47 C.F.R. § 21.101.

[34] Attachment at A-1 (proposed §21.101(a)).

there are no incumbent licensees, the existing emission limitation rule is unduly restrictive. PetroCom therefore proposes a special rule requiring the licensee to maintain emissions within the authorized spectrum block.[35]

C. Interference Rules

1. Protected Service Area

26. The Commission's Rules provide that the protected service area for a BTA license is coterminous with the boundary of the BTA, subject to the exclusion of the 35 mile protected service area of incumbent MDS stations and of previously proposed and authorized ITFS facilities within that BTA.[36] This rule should apply equally to Gulf BTA licensees.

2. Boundary Signal Strength

a. BTA Licensees

27. The Commission's existing interference protection rules limit the signal strength of a licensee to a maximum of -73 dBw/m^2 at the BTA boundary.[37] MDS licensees commenting on PetroCom's original petition expressed concern over application of the Commission's interference rules to a Gulf BTA. Specifically, these parties expressed concerns that: (i) current rules would permit a Gulf BTA licensee to require adjacent land-BTA licensees to lower power and decrease coverage, thereby preventing service to millions of Americans living along the coast; and (ii) due to the way signals propagate over water, a Gulf licensee will cause interference to the

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[35] Attachment at A-2 (proposed §21.106(a)(3)).

[36] 47 C.F.R. §§ 21.902(b), 21.933.

[37] 47 C.F.R. § 21.938.

protected service areas of adjacent BTAs licensees as well as to MDS and ITFS incumbents. Concern was also expressed regarding the phenomena of "superrefracting" and "ducting."

28. To ensure there will be no interference from a Gulf licensee, PetroCom proposes that the signal strength of Gulf licensees be limited to -75 dBw/m^2 at the BTA boundary line of adjacent land licensees.[38] The adjacent land licensee will continue to operate under the current signal strength limitation of -73 dBw/m^2 at the BTA boundary. Thus, the adjacent land licensee should always have a stronger signal strength at the shared border. This proposal accommodates the concerns of adjacent land licensees about interference.[39]

29. Concerns about superrefraction and ducting and can be accommodated by the interference rules adopted in the Two-Way MDS Proceeding and proposed here. Ducting occurs throughout much of the United States. A leading report on this subject, The Role of Elevated Ducting for Radio Service and Interference Fields, concludes that ducting is as likely to occur in

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[38] See Attachment A-27 (proposed §21.938). This 2 dB difference was derived using the assumptions that a land-based licensee is transmitting from a base station to a receive site which is 35 miles away, where 25 miles of that distance is land, and 10 miles is seawater (i.e., the distance from the coastline to the BTA boundary which extends into water). To prevent signal blockage from man-made objects, a 29 foot clearance between the earth's surface and the direct path signal was allowed, using a minimum tower height of 565 feet at the base station, and a minimum receive antenna height of 30 feet. Conservative assumptions were made for foliage, with tree height of 75 feet at a distance of 25 miles from the coast, and 25 feet at a distance of 2 miles. Using these assumptions, a 60% Fresnel Zone analysis shows that there will be a 2 dB difference between the attenuation of the signal over sea water and the attenuation over 25 miles of land and 10 miles of sea water.

[39] The following is an example of how PetroCom's proposed signal strength rule would work. First, it can be reasonably assumed that a household at the coastline can receive a signal transmitted from a land-based station located 10 miles inland and operating with these parameters: 100 watts transmitter power; 16 dBi omnidirectional antenna mounted at a height of 400 feet using Andrews circular waveguide (EW20); and a combiner and jumper loss of 4 dB resulting in an EIRP of 610 watts. Applying the proposed signal strength rule, a Gulf-based station transmitting from a platform which is 4 miles from the BTA border of the land-based system, and 14 miles from the shoreline, would be limited to an effective isotropic radiated power ("EIRP") of 16.5 watts. The Gulf-based station would cause no interference to the household's reception of the land-based station.

southern Illinois and Alabama as it is in the Gulf.[40] Superrefraction is a predictable phenomenon whose interference effects like those of ducting can be reduced to minimum levels with proper planning.[41]

b. MDS Incumbents and ITFS Facilities

30. The Commission's Rules state that an applicant's system provide at least 45 dB of co-channel and 0 dB of adjacent channel interference protection within the 35 mile protected service area of incumbent MDS and previously proposed or authorized ITFS facilities.[42] These provisions should apply equally to Gulf licensees. In addition, PetroCom proposes that the Commission require Gulf BTA licensees to conduct an interference analysis for all previously proposed or authorized ITFS and MDS stations, booster stations, response station hubs or registered receive sites that are within 150 miles of a proposed MDS station, response station hub or booster station.[43] This will further alleviate any interference concerns by adjacent ITFS and MDS licensees.

c. Response Station Hubs and Booster Stations

i. Method For Predicting Interference From Response Station Transmitters and To Response Station Hubs and For Supplying Data on Response Station Systems

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[40] H.T. Dougherty and E.J. Dutton, U.S Department of Commerce, National Telecommunications and Information Administration Report 81-69 (March, 1981).

[41] P.L. Rice et. al., Transmission Loss Predictions for Tropospheric Communication Circuits, Technical Note, U.S. Department of Commerce, National Bureau of Standards (Vol. I and II, 1967).

[42] 47 C.F.R. § 21.902.

[43] Attachment at A-13 (proposed §21.909(d)(3)(iv)) and A-20 (proposed §21.913(b)(3)).

31. In the Two-Way MDS proceeding, the Commission adopted rules for conducting interference studies in support of an application for a response station hub. Those rules provide that undesired signal levels and power flux densities should be calculated by accumulating all power generated by the main station, simultaneously operating response stations and co-channel booster stations which are being applied for or licensed to the applicant in the response service area ("RSA").[44] Under this rule, the resulting power flux density cannot exceed -73 dBw/m2 in the RSA.[45] However, the method for calculating the RSA, set forth in Appendix D of the Two-Way Order, is inappropriate for the Gulf, because it is based on the assumption that there is a high concentration of response stations in a given area.[46] Services provided by a Gulf system will be primarily to users on oil platforms, which are almost never less than 2-3 miles apart. Since a platform will only have one response station, it is highly unlikely that a licensee will have a high concentration of response stations in one area in the Gulf.

32. PetroCom's Gulf system does not utilize "Response Station Hubs." Accordingly, PetroCom proposes a new Section 21.916 that follows the same requirements as the existing rules in Section 21.909 for response station hubs except that "MDS Station" is specified in place of "Response Station Hub."[47] This change will enable a Gulf licensee to obtain a blanket response station license under Section 21.916 for all response stations communicating to a MDS station

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[44] 47 C.F.R. § 21.909(d).

[45] Id.

[46] Two-Way Order, Appendix D at 1.

[47] Attachment at A-25 (proposed §21.916). PetroCom's proposed rules, however, will accommodate a Gulf licensee that utilizes "response station hubs" in its system.

(including a booster station). PetroCom also proposes a more simple method for predicting interference by defining the RSA of a proposed MDS station, booster station or response station hub as the service areas of all response stations that will communicate with all such stations and by eliminating the step of creating the grid of points in the interference calculation.[48] The creation of the grid is unnecessary because of the low concentration of response stations in the Gulf. Interference can then be calculated in accordance with Section 21.909 by combining the signals of all the response stations in the RSA which are communicating simultaneously.[49]

3. Operations Close to Mexican Border

33. The Commission's Rules provide that a proposed station within 50 miles of the Mexican border must be designed to meet the requirements set forth in international treaties.[50] This same general restriction should apply to the operations of Gulf BTA licensees.

D. Construction Requirements

34. The Commission's Rules state that the license term of a BTA authorization is ten years.[51] Further, BTA licensees are given a five-year build-out period to construct MDS stations to provide signals that are capable of reaching at least two-thirds of the population of the applicable service area, excluding populations within protected service areas of incumbent

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[48] Id. Since response stations in the Gulf will be permitted to communicate with MDS stations and booster stations as well as response station hubs, the RSA will apply to these type of stations as well.

[49] 47 C.F.R. § 21.909(d).

[50] 47 C.F.R. § 21.902(b)(6).

[51] 47 C.F.R. § 21.929.

stations.[52] If the BTA licensee does not meet the build-out requirement, then the Commission will partition any unserved area from the BTA.[53] These rules should also apply to Gulf BTA licensees.

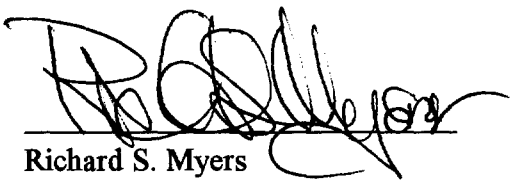
III. Conclusion

35. As previously noted, the Report submitted by Gulf Coast concluded that WLL service can be successfully deployed in the MDS and ITFS bands. To ensure speedy delivery of this new service to the Gulf, the Commission should expeditiously commence a rule making to amend Parts 21 and 74 of the Commission's rules to permit wide-area licensing of MDS and ITFS frequencies in the Gulf.

THEREFORE, PetroCom respectfully urges the Commission to grant this Amended Petition and commence a rule making proceeding concerning the proposals set forth herein.

Respectfully submitted,

PETROCOM LICENSE CORPORATION

By: 

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[52] 47 C.F.R. § 21.930(c).

[53] 47 C.F.R. § 21.930(d)(2).

ATTACHMENT -- PROPOSED RULES

PART 21

Subpart C -- Technical Standards

§21.101 Frequency tolerance.

(a) The carrier frequency of each transmitter authorized in these services shall be maintained within the following percentage of the reference frequency except as otherwise provided in paragraph (b) of this section or in the applicable subpart of this part (unless otherwise specified in the instrument of station authorization the reference frequency shall be deemed to be the assigned frequency):

Frequency range (MHz)	Frequency tolerance for fixed stations (percent)
2,150 to 2,162 fn1 fn2 fn3	0.001
2,596 to 2,680 fn2	0.005
2,300 to 2,686 fn3	

(b) As an additional requirement in any band where the Commission makes assignments according to a specified channel plan, provisions shall be made to prevent the emission included within the occupied bandwidth from radiating outside the assigned channel at a level greater than that specified in §21.106.

fn1 Beginning Aug. 9, 1975, this tolerance will govern the marketing of equipment pursuant to §§2.803 and 2.805 of this chapter and the issuance of all authorizations for new radio equipment. Until that date new equipment may be authorized with a frequency tolerance of 0.03 percent in the frequency range 2,200 to 10,500 MHz and equipment so authorized may continue to be used for its life provided that it does not cause interference to the operation of any other licensee. Equipment authorized in the frequency range 2,450 to 10,500 MHz prior to June 23, 1969, at a tolerance of 0.05 percent may continue to be used until February 1, 1976 provided it does not cause interference to the operation of any other licensee.

fn2 Beginning November 1, 1991, equipment authorized to be operated in the frequency bands 2150-2162 MHz, 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz, and 2674-2680 MHz for use in the Multipoint Distribution Service shall maintain a frequency tolerance within ±1 kHz of the assigned frequency. MDS booster stations authorized pursuant to §21.913(b) shall maintain a frequency tolerance within ±1 kHz of the assigned frequencies. MDS booster stations authorized pursuant to §21.913(e) and MDS response stations authorized pursuant to §21.909 shall employ transmitters with sufficient frequency stability to ensure that the emission stays within the authorized bandwidth.

[redacted]

§21.106 Emission limitations.

(a) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) When using transmissions other than those employing digital modulation techniques:

(i) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 decibels;

(ii) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 decibels;

(iii) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43+10 Log10 (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(2) When using transmissions employing digital modulation techniques (see §21.122(b)) in situations other than those covered by paragraph (a)(3) of this section:

(i) For operating frequencies below 15 GHz, in any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels.

A=35+0.8(P - 50)+10 Log10B. (Attenuation greater than 80 decibels is not required.)

where: A = Attenuation (in decibels) below the mean output power level.
P = Percent removed from the carrier frequency.
B = Authorized bandwidth in MHz.

(ii) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43+10 Log10 (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

[redacted]

frequency by more than 50 percent up to and including 250 percent of the authorized channel, must ensure that the emission as defined in §21.106(a)(2)(i) must stay within the authorized bandwidth block.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraph (a) of this section.

§21.107 Transmitter power.

(a) The power which a station will be permitted to use in these services will be the minimum required for satisfactory technical operation commensurate with the size of the area to be served and local conditions which affect radio transmission and reception. In cases of harmful interference, the Commission may, after notice and opportunity for hearing, order a change in the effective radiated power of a station.

(b) The EIRP of a transmitter station employed in this radio service shall not exceed the values shown in the following tabulation:

Frequency range (MHz)	Maximum allowable EIRP for a fixed station (Watts)
2,150 to 2,162	2000 fn1
2,596 to 2,680	2000 fn1
2,500 to 2,686 fn2	2000 fn1

fn1 When a Multipoint Distribution Service station uses a non-omnidirectional antenna EIRP up to 7943 Watts may be authorized pursuant to §21.904(b) of this Part.

fn2 Frequency range is available only in the Gulf of Mexico.

Subpart K - Multipoint Distribution Service

§21.900 Eligibility.

(a) Authorizations for stations in this service will be granted to existing and proposed communications common carriers and noncommon carriers. An application will be granted only in cases where it can be shown that:

(1) The applicant is legally, financially, technically, and otherwise qualified to render the proposed service; and

(2) There are frequencies available to enable the applicant to render a satisfactory service; and

(3) The public interest, convenience and necessity would be served by a grant thereof; and

(4) The licensee, in the case of the Block A Gulf of Mexico license, satisfies the eligibility criteria as set out in §21.925(b).

(b) The applicant shall state whether service will be provided on a common carrier basis, a non-common carrier basis, or alternating between a common carrier and non-common carrier basis. In addition, an applicant proposing to provide any common carrier service whatsoever shall state whether there is any affiliation or relationship to any intended or likely subscriber or program originator.

§21.901 Frequencies.

(a) Frequencies in the bands 2150-2162 MHz, 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz, 2674-2680 MHz and 2686-2690 MHz are available for assignment to fixed stations in this service. Frequencies in the band 2150-2160 MHz are shared with nonbroadcast omnidirectional radio systems licensed under other parts of the Commission's Rules, and frequencies in the band 2160-2162 MHz are shared with directional radio systems authorized in other common carrier services. Frequencies in the 2596-2644 MHz band are shared with Instructional Television Fixed Service stations licensed under Part 74 of the Commission's Rules. Channels I5, I13, I6 and I14, listed in §74.939(j) of this chapter, are assigned to fixed stations in the 2596-2620 band, and are shared with Instructional Television Fixed Service Stations licensed under Part 74 of the Commission's Rules to operate in this band; grandfathered channels I21, I29, I22 and I30, listed in §74.939(j) of this chapter, are licensed under Part 21 or Part 74 of the Commission's Rules, as applicable.

(b) Applicants may be assigned a channel(s) according to one of the following frequency plans:

(1) At 2150-2156 MHz (designated as Channel 1), or

(2) At 2156-2162 MHz (designated as Channel 2), or

(3) At 2156-2160 MHz (designated as Channel 2A), or

(4) At 2596-2602 MHz, 2608-2614 MHz, 2620-2626 MHz, and 2632-2638 MHz (designated as Channels E1, E2, E3, and E4, respectively, with the four channels to be designated the E-group channels), and Channels I5 and I13 listed in §74.939(j),[1] or

(5) At 2602-2608 MHz, 2614-2620 MHz, 2626-2632 MHz, and 2638-2644 MHz (designated as Channels F1, F2, F3, and F4, respectively, with the four channels to be designated the F-group channels), and Channels I6 and I14 listed in §74.939(j),[1] or

(6) At 2650-2656 MHz, 2662-2668 MHz, and 2674-2680 MHz (designated as Channels H1, H2, and H3, respectively, with the three channels to be designated the H-group channels.[1]

(c) Channel 2 will be assigned only where there is evidence that no harmful interference will occur to any authorized point-to-point facility in the 2160-2162 MHz band. Channel 2 may be assigned only if the transmitting antenna of the station is to be located within ten 16.1 kilometers (10 miles) of the coordinates of the following metropolitan areas:

Principal City	Coordinates

Akron, Oh	Lat. 41°05'06" N.	long. 81°31'06" W.
Albany-Schenectady-Troy, NY	Lat. 42°39'00" N.	long. 73°45'24" W.
Anaheim-Santa Ana-Garden Grove, Ca	Lat. 33°46'30" N.	long. 117°54'48" W.
Atlanta, Ga	Lat. 33°45'00" N.	long. 84°23'12" W.
Baltimore, Md	Lat. 39°17'18" N.	long. 76°37'00" W.
Birmingham, Al	Lat. 33°30'42" N.	long. 86°48'24" W.
Boston, Ma	Lat. 42°21'42" N.	long. 71°03'30" W.
Buffalo, NY	Lat. 42°53'12" N.	long. 78°52'30" W.
Chicago, Il	Lat. 41°53'00" N.	long. 87°37'30" W.
Cincinnati, Oh	Lat. 39°06'00" N.	long. 84°30'48" W.
Cleveland, Oh	Lat. 41°29'48" N.	long. 81°42'00" W.
Columbus, Oh	Lat. 39°57'42" N.	long. 83°00'06" W.
Dallas, Tx	Lat. 32°46'36" N.	long. 96°48'42" W.
Dayton, Oh	Lat. 39°45'24" N.	long. 84°11'42" W.
Denver, Co	Lat. 39°44'24" N.	long. 104°59'18" W.
Detroit, Mi	Lat. 42°20'00" N.	long. 83°03'00" W.
Fort Worth, Tx	Lat. 32°45'00" N.	long. 97°17'42" W.
Gary, In	Lat. 41°36'00" N.	long. 87°20'00" W.
Hartford, Ct	Lat. 41°46'00" N.	long. 72°40'30" W.
Houston, Tx	Lat. 29°45'48" N.	long. 95°21'42" W.
Indianapolis, In	Lat. 39°46'12" N.	long. 86°09'18" W.
Kansas City, Mo	Lat. 33°06'00" N.	long. 94°34'42" W.
Los Angeles-Long Beach, Ca	Lat. 34°03'18" N.	long. 118°15'00" W.
Louisville, Ky	Lat. 38°14'48" N.	long. 85°45'42" W.
Memphis, Tn	Lat. 35°07'30" N.	long. 90°03'24" W.
Miami, Fl	Lat. 25°46'30" N.	long. 80°11'24" W.
Milwaukee, Wi	Lat. 43°02'18" N.	long. 87°54'48" W.
Minneapolis-St. Paul, Mn	Lat. 44°59'00" N.	long. 93°1'48" W.
New Orleans, La	Lat. 29°57'48" N.	long. 90°03'48" W.
New York City, NY-Newark-Jersey City-Patterson, NJ	Lat. 40°42'30" N.	long. 74°00'00" W.
Norfolk, Va	Lat. 36°50'42" N.	long. 76°17'12" W.
Oklahoma City, Ok	Lat. 35°29'30" N.	long. 97°30'12" W.
Philadelphia, Pa	Lat. 39°57'00" N.	long. 75°09'48" W.
Phoenix, Az	Lat. 33°27'18" N.	long. 112°04'24" W.
Pittsburgh, Pa	Lat. 40°26'12" N.	long. 80°00'30" W.
Portland, Or	Lat. 45°32'06" N.	long. 122°37'12" W.
Providence, RI	Lat. 41°49'00" N.	long. 71°24'24" W.
Rochester, NY	Lat. 43°09'30" N.	long. 77°36'30" W.
Sacramento, Ca	Lat. 38°35'06" N.	long. 121°29'24" W.

San Antonio, Tx	Lat. 29°25'24" N.	long. 98°29'43" W.
San Bernardino-Riverside, Ca	Lat. 34°06'30" N.	long. 117°18'36" W.
San Diego, Ca	Lat. 32°42'48" N.	long. 117°09'12" W.
San Francisco-Oakland, Ca	Lat. 37°46'30" N.	long. 122°25'00" W.
San Jose-Palo Alto-Sunnyvale, Ca	Lat. 37°22'36" N.	long. 122°02'00" W.
Seattle-Everett, WA	Lat. 47°35'48" N.	long. 122°19'48" W.
St. Louis, Mo	Lat. 38°37'00" N.	long. 90°11'36" W.
Syracuse, NY	Lat. 43°03'06" N.	long. 76°09'00" W.
Tampa-St Petersburg, Fl	Lat. 27°57'06" N.	long. 82°27'00" W.
Toledo, Oh	Lat. 41°38'48" N.	long. 83°32'30" W.
Washington, DC	Lat. 38°53'30" N.	long. 77°02'00" W.

(d) An MDS licensee or conditional licensee may apply to exchange evenly one or more of its assigned channels with another MDS licensee or conditional licensee in the same system, or with an ITFS licensee or conditional licensee in the same system where one or both parties utilizes digital transmissions or leases capacity to an operator which utilizes digital transmissions. The licensees or conditional licensees seeking to exchange channels shall file in tandem with the Commission separate pro forma assignment of license applications, each attaching an exhibit which clearly specifies that the application is filed pursuant to a channel exchange agreement. The exchanged channel(s) shall be regulated according to the requirements applicable to the assignee.

(e) Frequencies in the band segments 18,580-18,820 MHz and 18,920-19,160 MHz are available for assignment to fixed stations in this service for a point-to-point return link from a subscriber's location. Assignments in the 18 GHz band for these return links will be made in accordance with the provisions of Subpart I of Part 101 of this chapter.

(f) MDS H-channel applications. Frequencies in the bands 2650-2656 MHz, 2662-2668 MHz, or 2674-2680 MHz must be assigned only in accordance with the following conditions: All applicants for H-channel MDS stations at frequencies in the bands 2650-2656 MHz, 2662-2668 MHz, or 2674-2680 MHz must specify either the H1, H2 or H3 channel for which an application is filed; however, the Commission may on its own initiative assign different channels in these frequency bands if it is determined that such action would serve the public interest.

(g) Frequencies in the bands 2150-2162 MHz, 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz and 2674-2680 MHz are available for point-to-multipoint use and/or for communications between MDS response stations and response station hubs when authorized in accordance with the provisions of §21.909, provided that such frequencies may be employed for MDS response stations only when transmitting using digital modulation.

(h) In the Gulf of Mexico, the frequencies from 2500-2686 MHz shall be reserved for the exclusive use of MDS licensees. Frequencies 2150-2156 MHz, 2500-2547 MHz, and 2593-2639 MHz shall comprise the Block A license. Frequencies 2156-2162 MHz, 2547-2593 MHz and 2639-2686 MHz shall comprise the Block B license. In the Gulf of

Model: the licensees are entitled to channelize their frequencies in any manner that does not cause interference.

NOTES:

[1] No 125 kHz channels are provided for Channels E3, E4, F3, F4, H1, H2 and H3, except for those grandfathered for Channels E3, E4, F3 and F4. The 125 kHz channels associated with Channels E3, E4, F3, F4, H1, H2 and H3 are allocated to the Private Operational Fixed Point-to-Point Microwave Service, pursuant to §101.147(g) of this chapter.

§21.903 Purpose and permissible service.

(a) Multipoint Distribution Service channels are available for transmissions from MDS stations and associated MDS signal booster stations to receive locations, and from MDS response stations to response station hubs or associated MDS stations. When service is provided on a common carrier basis, subscriber supplied information is transmitted to points designated by the subscriber. When service is provided on a non-common carrier basis, transmissions may include information originated by persons other than the licensee, licensee-manipulated information supplied by other persons, or information originated by the licensee. Point-to-point radio return links from a subscriber's location to a MDS operator's facilities may also be authorized in the 18,580 through 18,820 MHz and 18,920 through 19,160 MHz bands. Rules governing such operation are contained in Subpart I of Part 101 of this chapter, the Point-to-Point Microwave Radio Service.

(b) Unless otherwise directed or conditioned in the applicable instrument of authorization, Multipoint Distribution Service stations may render any kind of communications service consistent with the Commission's Rules on a common carrier or on a noncommon carrier basis, provided that:

(1) Unless service is rendered on a noncommon carrier basis, the common carrier controls the operation of all receiving facilities (e.g., including any equipment necessary to convert the signal to a standard television channel, but excluding the television receiver); and

(2) Unless service is rendered on a noncommon carrier basis, the common carrier's tariff allows the subscriber the option of owning the receiving equipment (except for the decoder) so long as:

(i) The customer provides the type of equipment as specified in the tariff;

(ii) Such equipment is in suitable condition for the rendition of satisfactory service; and

(iii) Such equipment is installed, maintained and operated pursuant to the common carrier's instructions and control.

(c) The carrier's tariff shall fully describe the parameters of the service to be provided, including the degree of privacy of communications a subscriber can expect in ordinary service. If the ordinary service does not provide for complete security of transmission, the tariff shall make provision for service with such added protection upon request.

(d) An MDS licensee also may apply for authorization by the Commission to alternate, without further authorization required, between rendering service on a common carrier

and non-common carrier basis, provided that the licensee notify the Commission of any service status changes at least 30 days in advance of such changes.

§21.908 Transmitting equipment.

(a) The maximum out-of-band power of an MDS station transmitter or booster transmitting on a single 6 MHz channel with an EIRP in excess of -9 dBw employing analog modulation shall be attenuated at the channel edges by at least 38 dB relative to the peak visual carrier, then linearly sloping from that level to at least 60 dB of attenuation at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge, and attenuated at least 60 dB at all other frequencies. The maximum out-of-band power of an MDS station transmitter or booster transmitting on a single 6 MHz channel or a portion thereof with an EIRP in excess of -9 dBw (or, when subchannels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths) employing digital modulation shall be attenuated at the 6 MHz channel edges at least 25 dB relative to the licensed average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies. Notwithstanding the foregoing, in situations where an MDS station or booster station transmits, or where adjacent channel licensees jointly transmit, a single signal over more than one contiguous 6 MHz channel utilizing digital modulation with an EIRP in excess of -9 dBw (or, when subchannels or superchannels are used, the appropriately adjusted value based upon the ratio of 6 MHz to the subchannel or superchannel bandwidth), the maximum out-of-band power shall be attenuated at the channel edges of those combined channels at least 25 dB relative to the power level of each channel, then attenuated along a linear slope from that level to at least 40 dB at 250 kHz above or below the channel edges of those combined channels, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower edges of those combined channels, and attenuated at least 60 dB at all other frequencies. However, should harmful interference occur as a result of emissions outside the assigned channel, additional attenuation may be required. A transmitter licensed prior to November 1, 1991, that remains at the station site initially licensed, and does not comply with this subsection, may continue to be used for its life if it does not cause harmful interference to the operation of any other licensee. Any non-conforming transmitter replaced after November 1, 1991, must be replaced by a transmitter meeting the requirements of this subsection.

(1) In the Gulf of Mexico, licensees must meet the out-of-band emissions limits stated above only at the edges of the authorized spectrum blocks.

(b) A booster transmitting on multiple contiguous or non-contiguous channels carrying separate signals (a "broadband" booster) with an EIRP in excess of -9 dBw per 6 MHz channel and employing analog, digital or a combination of these modulations shall have the following characteristics:

(1) For broadband boosters operating in the frequency range of 2.150-2.160/2 GHz, the maximum out-of-band power shall be attenuated at the upper and lower channel edges forming the band edges by at least 25 dB relative to the licensed analog peak visual carrier or digital average power level (or, when subchannels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths), then linearly sloping from that level to at least 40 dB of attenuation at 0.25 MHz above and below the band edges, then linearly sloping from that level to at least 60 dB of attenuation at 3.0 MHz above and below the band edges, and attenuated at least 60 dB at all other frequencies.

(2) For broadband boosters operating in frequency range of 2.500-2.690 GHz, the maximum out-of-band power shall be attenuated at the upper and lower channel edges forming the band edges by at least 25 dB relative to the licensed analog peak visual carrier or digital average power level (or, when subchannels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths), then linearly sloping from that level to at least 40 dB of attenuation at 0.25 MHz above and below the band edges, then linearly sloping from that level to at least 50 dB of attenuation at 3.0 MHz above and below the band edges, then linearly sloping from that level to at least 60 dB of attenuation at 20 MHz above and below the band edges, and attenuated at least 60 dB at all other frequencies.

(3) Within unoccupied channels in the frequency range of 2.500-2.690 GHz, the maximum out-of-band power shall be attenuated at the upper and lower channel edges of an unoccupied channel by at least 25 dB relative to the licensed analog peak visual carrier power level or digital average power level of the occupied channels (or, when subchannels or 125 kHz channels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths), then linearly sloping from that level to at least 40 dB of attenuation at the 0.25 MHz above and below the occupied channel edges, then linearly sloping from that level to at least 50 dB of attenuation at 3.0 MHz above and below the occupied channel edges, and attenuated at least 50 dB at all other unoccupied frequencies.

(c) Boosters operating with an EIRP less than -9 dBw per 6 MHz channel shall have no particular out-of-band power attenuation requirement, except that if they cause harmful interference, their operation shall be terminated within 2 hours of notification by the Commission until the interference can be cured.

(d) The maximum out-of-band power of an MDS response station using all or part of a 6 MHz channel and employing digital modulation shall be attenuated at the 6 MHz channel edges at least 25 dB relative to the licensed average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies. Where MDS response stations with digital modulation utilize all or part of more than one contiguous 6 MHz channel to form a larger channel (e.g., a channel of width 12 MHz), the above specified attenuations shall be applied only at the upper and

lower edges of the overall combined channel. Notwithstanding these provisions, should harmful interference occur as a result of emissions outside the assigned channel(s), additional attenuation may be required by the Commission.

(e) In measuring compliance with the out-of-band emissions limitations, the licensee shall employ one of two methods: (1) absolute power measurement of the average signal power with one instrument, with measurement of the spectral attenuation on a separate instrument; or (2) relative measurement of both the average power and the spectral attenuation on a single instrument. The appropriate one of the two following formulas shall be used in each instance:

For absolute power measurements:

$$\text{Attenuation in dB (below channel power)} = A + 10_{\log} (C_{Bw} / R_{Bw})$$

For relative power measurements:

$$\text{Attenuation in dB (below flat top)} = A + 10_{\log} (R_{Bw1} / R_{Bw2})$$

Where:
- A = Attenuation specified for spectral point (e.g., 25, 35, 40, 60 dB)
- C_{Bw} = Channel bandwidth (for absolute power measurements)
- R_{Bw} = Resolution bandwidth (for absolute power measurements)
- R_{Bw1} = Resolution bandwidth for flat top measurement (relative)
- R_{Bw2} = Resolution bandwidth for spectral point measurement (relative)

The formula for absolute power measurements is to be used when the average signal power is found using a separate instrument, such as a power meter; the formula gives the amount by which the measured power value is to be attenuated to find the absolute power value to be used on the spectrum analyzer or equivalent instrument at the spectral point of concern. The formula for relative power measurements is to be used when the average signal power is found using the same instrument as used to measure the attenuation at the specified spectral points, and allows different resolution bandwidths to be applied to the two parts of the measurement; the formula gives the required amplitude separation (in dB) between the flat top of the (digital) signal and the point of concern.

§21.909 MDS response stations.

(a) An MDS response station is authorized to provide communication by voice, video and/or data signals with its associated MDS response station hub or MDS station. An MDS response station may be operated only by the licensee of an MDS station, by any lessee of the MDS station or response station hub, or by a subscriber of either. The authorized channel may be divided to provide distinct subchannels for each of more than one response station, provided that digital modulation is employed and the aggregate power does not exceed the authorized power for the channel. An MDS response station may also, jointly with other licensees, transmit utilizing bandwidth in excess of that authorized

to the station, provided that digital modulation is employed, all power spectral density requirements set forth in the Part are met, and the out-of-band emissions restrictions set forth in §21.908(b) or §21.909(j) are complied with. When a 125 kHz channel is employed for response communications, the specific channel which may be used by the response station is determined in accordance with §§21.901 and 74.939(j).

(b) MDS response stations that utilize the bands 2150-2162 MHz, the 2500-2686 MHz band; and/or the 125 kHz channels maybe installed and operated without an individual license, to communicate with a response station hub authorized under a response station hub license, provided that the conditions set forth in §21.909(g) are complied with and that MDS response stations operating in the bands 2150-2162 MHz and/or 2500-2686 band(s) employ only digital modulation with uniform power spectral density in accordance with the Commission's *Declaratory Ruling and Order*, 11 FCC Rcd 18839 (1996).

(c) An applicant for a response station hub license shall:

(1) File FCC Form 331 with Mellon Bank, and certify on that form that it has complied with the requirements of §21.909(c)(2) and (d). Failure to certify compliance and to comply completely with the requirements of §21.909(c)(2) and (d) shall result in dismissal of the application or revocation of the response station hub license, and may result in imposition of a monetary forfeiture; and

(2) Submit to International Transcription Services, Inc. ("ITS"), 1231 20th Street, N.W., Washington, DC 20036, both in hard copy, and on a 3.5" computer diskette in ASCII, the following:

(i) Duplicates of the Form 331 filed with Mellon Bank; and

(ii) The data required by Appendix D to the *Report and Order* in MM Docket No. 97-217, FCC 98-231, "Methods for Predicting Interference from Response Station Transmitters and to Response Station Hubs and for Supplying Data on Response Station Systems;" and

(iii) the information, showings and certifications required by §21.909(d) and

(3) Submit to the Commission, only upon Commission staff request, duplicates of the submissions required by §21.909(c)(2).

(d) An applicant for a response station hub license shall, pursuant to §21.909(c)(2)(iii), submit to ITS the following:

(1) The geographic coordinates, street address, and the height of the center line of the reception antenna(s) above mean sea level for the proposed response station hub; and

(2) A specification of:

(i) the response service area in which the applicant or its lessee proposes to install MDS response stations to communicate with the response station hub, any regions into which the response service area will be subdivided for purposes of interference analysis, and any regional classes of response station characteristics which will be used to define the operating parameters of groups of response stations within each region for purposes of interference analysis, including:

(A) the maximum height above ground level of the transmission antenna that will be employed by any response station in the regional class and that will be used in interference analyses; and

(B) the maximum equivalent isotropic radiated power (EIRP) that will be employed by any response station in the regional class and that will be used in interference analyses; and

(C) any sectorization that will be employed, including the polarization to be employed by response stations in each sector and the geographic orientation of the sector boundaries, and that will be used in interference analyses; and

(D) the combined worst-case outer envelope plot of the patterns of all models of response station transmission antennas that will be employed by any response station in the regional class to be used in interference analyses; and

(E) the maximum number of response stations that will be operated simultaneously in each region using the characteristics of each regional class applicable to each region.

(ii) the channel plan (including any guardbands at the edges of the channel) to be used by MDS response stations in communicating with each response station hub, including a statement as to whether the applicant will employ the same frequencies on which response stations will transmit to also transmit on a point-to-multipoint basis from an MDS station or MDS booster station; and

(3) A demonstration that:

(i) The proposed response station hub is within a protected service area, as defined in §21.902(d) or §21.933, to which the applicant is entitled either (A) by virtue of its being the licensee of an incumbent MDS station whose channels are being converted for MDS response station use; or (B) by virtue of its holding a Basic Trading Area or Partitioned Service Area authorization. In the case of an application for response stations to utilize one or more of the 125 kHz response channels, such demonstration shall establish that the response service hub is within the protected service area of the station authorized to utilize the associated channel E-Group or F-Group channel(s); and

(ii) The entire proposed response service area is within a protected service area to which the applicant is entitled either (A) by virtue of its being the licensee of an incumbent MDS station whose channels are being converted for MDS response station use; or (B) by virtue of its holding a Basic Trading Area or Partitioned Service Area authorization. In the alternative, the applicant may demonstrate that the licensee entitled to any cochannel protected service area which is overlapped by the proposed response service area has consented to such overlap. In the case of an application for response stations to utilize one or more of the 125 kHz response channels,

such demonstration shall establish that the response service area is entirely within the protected service area of the station authorized to utilize the associated E-Group or F-Group channel(s), or, in the alternative, that the licensee entitled to any cochannel protected service area which is overlapped by the proposed response service area has consented to such overlap; and

(iii) The combined signals of all simultaneously operating MDS response stations within all response service areas and oriented to transmit towards their respective response station hubs, and all cochannel MDS stations and booster stations licensed to or applied for by the applicant will not generate a power flux density in excess of -73 dBw/m2 (or the pro rata power spectral density equivalent based on the bandwidth actually employed in those cases where less than a 6 MHz channel is to be employed) outside the boundaries of the applicant's protected service area, as measured at locations for which there is an unobstructed signal path, except to the extent that consent of the affected licensees has been granted pursuant to §21.909(d)(3)(ii) to an extension of the response service area beyond the boundaries of the protected service area; and

(iv) The combined signals of all simultaneously operating MDS response stations within all response service areas and oriented to transmit towards their respective response station hubs, and all cochannel MDS stations and booster stations licensed to or applied for by the applicant, will result in a desired to undesired signal ratio of at least 45 dB (or the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths): (A) within the protected service area of any authorized or previously proposed cochannel incumbent MDS or ITFS station with a 56.33 km (35 miles) protected service area with center coordinates located within 160.94 km (100 miles) of the proposed response station hub; and (B) within the booster service area of any cochannel booster station entitled to such protection pursuant to §§21.913(f) or 74.985(f) and located within 160.94 km (100 miles) of the proposed response station hub; and (C) at any registered receive site of any authorized or previously-proposed cochannel channel ITFS station or booster station located within 160.94 km (100 miles) of the proposed response station hub, or, in the alternative, that the licensee of or applicant for such cochannel station or hub consents to the application [redacted]; and

(v) The combined signals of all simultaneously operating MDS response stations within all response service areas and oriented to transmit towards their respective response station hubs, and all cochannel MDS stations and

booster stations licensed to or applied for by the applicant, will result in a desired to undesired signal ratio of at least 0 dB (or the appropriately adjusted value based upon the ratio of the channel to subchannel bandwidths): (A) within the protected service area of any authorized or previously-proposed adjacent channel incumbent MDS or ITFS station with a 56.33 km (35 miles) protected service area with center coordinates located within 160.94 km (100 miles) of the proposed response station hub; and (B) within the booster service area of any adjacent channel booster station entitled to such protection pursuant to §§21.913(f) or 74.985(f) and located within 160.94 km (100 miles) of the proposed response station hub; and (C) at any registered receive site of any authorized or previously-proposed adjacent channel ITFS station or booster station located within 160.94 km (100 miles) of the proposed response station hub, or, in the alternative, that the licensee of or applicant for such adjacent channel station or hub consents to the application [redacted]; and

(vi) The combined signals of all simultaneously operating MDS response stations within all response service areas and oriented to transmit towards their respective response station hubs and all cochannel MDS stations and booster stations licensed to or applied for by the applicant will comply with the requirements of §§21.909(i) and 74.939(i).

(4) A certification that the application has been served upon

(i) the holder of any cochannel or adjacent channel authorization with a protected service area which is overlapped by the proposed response service area;

(ii) the holder of any cochannel or adjacent channel authorization with a protected service area that adjoins the applicant's protected service area;

(iii) the holder of any cochannel or adjacent channel authorization for any BTA or PSA inside whose boundaries are locations for which there is an unobstructed signal path for combined signals from within the response station hub applicant's protected service area; and

(iv) every licensee of, or applicant for, any cochannel or adjacent channel, authorized or previously-proposed, incumbent MDS station with a 56.33 km (35 miles) protected service area with center coordinates located within 160.94 km (100 miles) of the proposed response station hub [redacted]

with center coordinates located within 241.4 km (150 miles) of the proposed response station hub; and

(v) every licensee of or applicant for, any cochannel or adjacent channel, authorized or previously proposed, incumbent ITFS station with a 56.33 km (35 miles) protected service area with center coordinates located within 160.94 km (100 miles) of the proposed response station hub [Applicants proposing a response station hub or MDS station in the Gulf of Mexico must certify that the application has been served on any cochannel or adjacent channel, authorized or previously proposed, incumbent ITFS station with a 56.33 km (35 miles) protected service area with center coordinates located within 241.4 km (150 miles) of the proposed response station hub].

(e) Except as set forth in §21.27(d), applications for response station hub licenses may be filed at any time. Notwithstanding any other provision of Part 21 (including §21.31), applications for response station hub licenses meeting the requirements of §21.909(c) shall cut-off applications that are filed on a subsequent day for facilities that would cause harmful electromagnetic interference to the proposed response station hubs. A response station hub shall not be entitled to protection from interference caused by facilities proposed on or prior to the day the application for the response station hub license is filed. Response stations shall not be required to protect from interference facilities proposed on or after the day the application for the response station hub license is filed.

(f) Notwithstanding the provisions of §21.30(b)(4) and except as set forth in §21.27(d), any petition to deny an application for a response station hub license shall be filed no later than the sixtieth (60th) day after the date of public notice announcing the filing of such application or major amendment thereto. Notwithstanding the provisions of §21.31 and except as provided in §21.27(d), an application for a response station hub license that meets the requirements of this section shall be granted on the sixty-first (61st) day after the Commission shall have given public notice of the acceptance for filing of it, or of a major amendment to it if such major amendment has been filed, unless prior to such date either a party in interest timely files a formal petition to deny or for other relief pursuant to §21.30(a), or the Commission notifies the applicant that its application will not be granted. Where an application is granted pursuant to the provisions of this subsection, the conditional licensee or licensee shall maintain a copy of the application at the response station hub until such time as the Commission issues a response station hub license.

(g) An MDS response station hub license shall be conditioned upon compliance with the following:

(1) No MDS response station shall be located beyond the response service area of the response station hub with which it communicates; and

(2) No MDS response station shall operate with a transmitter output power in excess of 2 watts, except that in the Gulf of Mexico, no MDS response station shall operate with a transmitter output power in excess of 4 watts; and

(3) No MDS response station shall operate with an EIRP in excess of that specified in the application for the response station hub pursuant to §21.909(d)(2)(i)(B) for the

particular regional class of characteristics with which the response station is associated, and such response station shall not operate at an excess of 33 dBw EIRP (or, when subchannels or superchannels, or 125 kHz channels, are used, the appropriately adjusted value based upon the ratio of 6 MHz to the subchannel or superchannel, or 125 kHz, bandwidth); and

(4) Each MDS response station shall employ a transmission antenna oriented towards the response station hub with which the MDS response station communicates, and such antenna shall be no less directional than the worst case outer envelope pattern specified in the application for the response station hub pursuant to §21.909(d)(2)(i)(D) for the regional class of characteristics with which the response station is associated; and

(5) The combined out-of-band emissions of all response stations using all or part of one or multiple contiguous 6 MHz channels and employing digital modulation shall comply with §21.908(d). The combined out-of-band emissions of all response stations using all or part of one or multiple contiguous 125 kHz channels shall comply with §21 .909(j). However, should harmful interference occur as a result of emissions outside the assigned channel, additional attenuation may be required; and

(6) The response stations transmitting simultaneously at any time within any given region of the response service area utilized for purposes of analyzing the potential for interference by response stations shall conform to the numerical limits for each class of response station proposed in the application for the response station hub license. Notwithstanding the foregoing, the licensee of a response station hub license may alter the number of response stations of any class operated simultaneously in a given region without prior Commission authorization, provided that the licensee:

(i) First notifies the Commission of the altered number of response stations of such class(es) to be operated simultaneously in such region, and certifies in that notification that it has complied with the requirements of §21.909(g)(6)(ii) and (iii); and

(ii) Provides ITS with a copy of such notification and with an analysis establishing that such alteration will not result in any increase in interference to the protected service area or protected receive sites of any existing or previously-proposed, cochannel or adjacent channel MDS or ITFS station or booster station, to the protected service area of any MDS Basic Trading Area or Partitioned Service Area licensee entitled to protection pursuant to §21.909(d)(3), or to any existing or previously-proposed, cochannel or adjacent channel response station hub or response station under §21.940 or §74.940; or that the applicant for or licensee of such facility has consented to such interference; and

(iii) Serves a copy of such notification and analysis upon each party entitled to be served pursuant to §21.909(d)(4); and

(iv) Submits to the Commission, only upon Commission staff request, duplicates of the submissions required by §21.909(g)(6)(ii); and

(7) Where an application is granted under this section, if a facility operated pursuant to that grant causes harmful, unauthorized interference to any cochannel or adjacent channel facility, it must promptly remedy the interference or immediately cease operations of the interfering facility, regardless of whether any petitions to deny or for other relief were filed against the application during the application process. The burden of proving that a facility operated under this section is not causing harmful, unauthorized interference lies on the licensee of the alleged interfering facility, following the filing of a documented complaint of interference by an affected party; and

(8) In the event any MDS or ITFS receive site suffers interference due to block downconverter overload, the licensee of each response station hub with a response service area within five miles of such receive site shall cooperate in good faith to expeditiously identify the source of the interference. Each licensee of a response station hub with an associated response station contributing to such interference shall bear the joint and several obligation to promptly remedy all interference resulting from block down converter overload at any ITFS receive site registered prior to the submission of the application for the response station hub license or at any receive site within an MDS or ITFS protected service area applied for prior to the submission of the application for the response station hub license, regardless of whether the receive site suffering the interference was constructed prior to or after the construction of the response station(s) causing the downconverter overload; provided, however, that the licensee of the registered ITFS receive site or the MDS or ITFS protected service area must cooperate fully and in good faith with efforts by the response station hub licensee to prevent interference before constructing response stations and/or to remedy interference that may occur. In the event that more than one response station hub licensee contributes to block down converter interference at a MDS or ITFS receive site, the licensees of the contributing response station hubs shall cooperate in good faith to promptly remedy the interference.

(h) Applicants must comply with Part 17 of this chapter concerning notification to the Federal Aviation Administration of proposed antenna construction or alteration.

(i) Response station hubs shall be protected from cochannel and adjacent channel interference in accordance with the following criteria:

(1) An applicant for any new or modified MDS or ITFS station (including any high-power booster station or response station hub) shall be required to demonstrate interference protection to a response station hub within 160.94 km (100 miles) of the proposed facilities. In lieu of the interference protection requirements set forth in §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903, such demonstration shall establish that the proposed facility will not increase the effective power flux density of the undesired signals generated by the proposed facility and any associated main stations, booster stations or response stations at

the response station hub antenna for any sector. In lieu of the foregoing, an applicant for a new MDS or ITFS main station license or for a new or modified response station hub or booster license may demonstrate that the new facility will not increase the noise floor at a reception antenna of the response station hub by more than 1 dB for cochannel signals and 45 dB for adjacent channel signals, provided that:

(i) the entity submitting the application may only invoke this alternative once per response station hub reception sector; or

(ii) the licensee of the affected response station hub may consent to receive a certain amount of interference at its hub.

(2) Commencing upon the filing of an application for an MDS response station hub license and until such time as the application is dismissed or denied or, if the application is granted, a certificate of completion of construction is filed, the MDS station whose channels are being utilized shall be entitled both to interference protection pursuant to §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903, and to protection of the response station hub pursuant to the preceding subparagraph. Unless the application for the response station hub license specifies that the same frequencies also will be employed for digital and or analog point-to-multipoint transmissions by MDS stations and or MDS booster stations, upon the filing of a certificate of completion of construction of an MDS response station hub where the channels of an MDS station are being utilized as response station transmit frequencies, the MDS station whose channels are being utilized for response station transmissions shall no longer be entitled to interference protection pursuant to §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903 within the response service area with regard to any portion of any 6 MHz channel employed solely for response station communications. Upon the certification of completion of construction of an MDS response station hub where the channels of an MDS station are being utilized for response station transmissions and the application for the response station hub license specifies that the same frequencies will be employed for point-to-multipoint transmissions, the MDS station whose channels are being utilized shall be entitled both to interference protection pursuant to §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903, and to protection of the response station hub pursuant to the preceding provisions of this subsection.

(j) 125 kHz wide response channels shall be subject to the following requirements: The 125 kHz wide channel shall be centered at the assigned frequency. If amplitude modulation is used, the carrier shall not be modulated in excess of 100%. If frequency modulation is used, the deviation shall not exceed ± 25 kHz. Any emissions outside the channel shall be attenuated at the channel edges at least 35 dB below peak output power when analog modulation is employed or 35 dB below licensed average output power when digital modulation is employed (or, when subchannels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths). Any emissions more than 125 kHz from either channel edge, including harmonics, shall be attenuated at least 60 dB

below peak output power when analog modulation is employed, or at least 60 dB below licensed average output power when digital modulation is employed (or, when subchannels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel bandwidths). Notwithstanding the foregoing, in situations where adjacent channel licensees jointly transmit over more than one contiguous channel utilizing digital modulation, the maximum out-of-band power shall be attenuated at the edges of those combined channels at least 35 dB relative to the licensed average power level of each channel. Emissions more than 125 kHz from either edge of the combined channels, including harmonics, shall be attenuated at least 60 dB below peak analog power or average digital power of each channel, as appropriate.

(k) A response station may be operated unattended. The overall performance of the response station transmitter shall be checked by the hub licensee as often as necessary to ensure that it is functioning in accordance with the requirements of the Commission's rules. The licensee of a response station hub is responsible for the proper operation of all associated response station transmitters and must have reasonable and timely access to all associated response station transmitters. Response stations shall be installed and maintained by the licensee of the associated hub station, or the licensee's employees or agents, and protected in such manner as to prevent tampering or operation by unauthorized persons. No response station hub may lawfully communicate with any response station which has not been installed by an authorized person, and each response station hub licensee is responsible for maintaining, and making available to the Commission upon request, a list containing the customer name and site location (street address and latitude/longitude to the nearest second) of each associated response station, plus the technical parameters (e.g., EIRP, emission, bandwidth, and antenna patter, height, orientation and polarization) pertinent to each specific response station.

(l) The transmitting apparatus employed at MDS response stations shall have received type certification.

(m) An MDS response station shall be operated only when engaged in communication with its associated MDS response station hub or MDS station, or for necessary equipment or system tests and adjustments. Radiation of an unmodulated carrier and other unnecessary transmissions are forbidden.

(n) At least 20 days prior to the activation of a response station transmitter located within a radius of 1960 feet of a registered or previously-applied-for ITFS receive site, the response station hub licensee must notify, by certified mail, the licensee of the ITFS site of the intention to activate the response station. The notification must contain the street address and geographic coordinates (to the nearest second) of the response station, a specification of the station's EIRP, antenna pattern/orientation/height AMSL, channel(s) to be used, as well as the name and telephone number of a contact person who will be responsible for coordinating the resolution of any interference problems.

(o) Interference calculations shall be performed in accordance with Appendix D to the *Report and Order* in MM Docket No. 97-217, FCC 98-231, "Method For Predicting Interference From Response Station Transmitters and To Response Station Hubs and For Supplying Data on Response Station Systems," except that interference calculations for proposed

[redacted]

Compliance with the out-of-band emissions limitations shall be established in accordance with Section 21.908(e).

§21.913 Signal booster stations.

(a) An MDS booster station may reuse channels to repeat the signals of MDS stations or to originate signals on MDS channels. [redacted] The aggregate power flux density generated by an MDS station and all associated signal booster stations and all simultaneously operating cochannel response stations may not exceed -73 dBw/m^2 (or, when subchannels or 125 kHz channels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel or 125 kHz bandwidths) at or beyond the boundary of the protected service area, as defined in §§21.902(d) and 21.933, of the main MDS station whose channels are being reused, as measured at locations for which there is an unobstructed signal path, unless the consent of the affected cochannel licensee is obtained.

(b) An MDS licensee or conditional licensee who is a response station hub licensee, conditional licensee or applicant may secure a license for an MDS signal booster station that has a maximum power level in excess of -9 dBw EIRP (or, when subchannels or superchannels, 125 kHz channels, are used, the appropriately adjusted value based upon the ratio of 6 MHz to the sub channel or superchannel, or 125 kHz, bandwidth) and that employs only digital modulation with uniform power spectral density in accordance with the Commission's *Declaratory Ruling and Order*, 11 FCC Rcd 18839 (1996) (a "high-power MDS signal booster station"). The applicant for a high-power MDS signal booster station shall file FCC Form 331 with Mellon Bank, and certify on that form that the applicant has complied with the additional requirements of §21.913(b). Failure to certify compliance and to comply completely with the following requirements of §21.913(b) shall result in dismissal of the application or revocation of the high-power MDS signal booster station license, and may result in imposition of a monetary forfeiture. The applicant for a high-power MDS signal booster station additionally is required to submit to International Transcription Services, Inc., 1231 20th Street, N.W., Washington, DC 20036, both in hard copy, and on a 3.5" computer diskette in ASCII, and likewise to submit to the Commission, only upon Commission staff request, duplicates of the Form 331 filed with Mellon Bank, and the following information:

(1) A demonstration that the proposed booster station site is within the protected service area, as defined in §§21.902(d), 21.933, of the MDS station whose channels are to be reused; and

(2) A study which demonstrates that the aggregate power flux density of the MDS station and all associated booster stations and simultaneously operating co-channel response stations licensed to or applied for by the applicant, measured at or beyond the boundary of the protected service area of the MDS station whose

channels are to be reused, does not exceed -73 dBw/m2 (or, when subchannels or 125 kHz channels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel or 125 kHz bandwidths) at locations for which there is an unobstructed signal path unless the consent of affected licensee has been obtained; and

(3) In lieu of the requirements of §21.902(c) and (i), a study which demonstrates that the proposed booster station will cause no harmful interference (as defined in §21.902(f)) to co-channel and adjacent-channel, authorized or previously-proposed ITFS and MDS stations with protected service area center coordinates as specified in §21.902(d), to any authorized or previously-proposed response station hubs, booster stations or I channel stations associated with such ITFS and MDS station, or to any previously-registered ITFS receive sites, within 160.94 kilometers (100 miles) of the proposed booster station's transmitter site. Applicants proposing to locate beyond the 241.4 km (150 miles) of the proposed booster station. Such study shall consider the undesired signal levels generated by the proposed signal booster station, the main station, all other licensed or previously-proposed associated booster stations, and all simultaneously operating cochannel response stations licensed to or applied for by the applicant. In the alternative, a statement from the affected MDS or ITFS licensee or conditional licensee stating that it does not object to operation of the high-power MDS signal booster station may be submitted; and

(4) A description of the booster service area; and

(5) A demonstration either

(i) That the booster service area is entirely within the protected service area to which the licensee of a station whose channels are being reused is entitled by virtue of its being the licensee of an incumbent MDS station, or by virtue of its holding a Basic Trading Area or Partitioned Service Area authorization; or

(ii) That the licensee entitled to any cochannel protected service area which is overlapped by the proposed booster service area has consented to such overlap; and

(6) A demonstration that the proposed booster service area can be served by the proposed booster without interference; and

(7) A certification that copies of the materials set forth in this §21.913(b) have been served upon the licensee or conditional licensee of each station (including each response station hub and booster station) required to be studied pursuant to §21.913 (b)(3), and upon any affected holder of a Basic Trading Area or Partitioned Service Area authorization pursuant to §21.913(b)(2).

(c) Except as provided in §21.27(d), applications for high-power MDS signal booster station licenses may be filed at any time. Notwithstanding any other provision of Part 21

(including §21.31), applications for high-power MDS signal booster licenses meeting the requirements of §21.913(b) shall cut-off applications that are filed on a subsequent day for facilities that would cause harmful electromagnetic interference to the proposed booster stations.

(d) Notwithstanding the provisions of §21.30(a)(4) and except as provided in §21.27(d), any petition to deny an application for a high-power MDS signal booster station license shall be filed no later that the sixtieth (60th) day after the date of public notice announcing the filing of such application or major amendment thereto. Notwithstanding §21.31 and except as provided in §21.27(d), an application for a high-power MDS signal booster station license that meets the requirements of §21.913(b) shall be granted on the sixty-first (61st) day after the Commission shall have given public notice of the acceptance for filing of it, or of a major amendment to it if such major amendment has been filed, unless prior to such date either a party in interest timely files a formal petition to deny or for other relief pursuant to §21.30(a), or the Commission notifies the applicant that its application will not be granted. Where an application is granted pursuant to the provisions of this subsection, the conditional licensee or licensee shall maintain a copy of the application at the MDS booster station until such time as the Commission issues a high-power MDS signal booster station license.

(e) Eligibility for a license for an MDS signal booster station that has a maximum power level of -9 dBw EIRP (or, when subchannels or superchannels, or 125 kHz channels, are used, the appropriately adjusted value based upon the ratio of 6 MHz to the subchannel or superchannel or 125 kHz bandwidth) (a "low-power MDS signal booster station)" shall be restricted to an MDS licensee or conditional licensee. A low-power MDS signal booster station may operate only on one or more MDS channels that are licensed to the licensee of the MDS booster station, but may be operated by a third party with a fully-executed lease or consent agreement with the MDS conditional licensee or licensee. An MDS licensee or conditional licensee may install and commence operation of a low-power MDS signal booster station for the purpose of retransmitting the signals of the MDS station or for originating signals. MDS signal booster stations located in the Gulf of Mexico may also retransmit the signal of MDS response stations. Such installation and operation shall be subject to the condition that for sixty (60) days after installation and commencement of operation, no objection or petition to deny is filed by an authorized cochannel or adjacent channel ITFS or MDS station with a transmitter within 8.0 kilometers (5 miles) of the coordinates of the low-power MDS signal booster. An MDS licensee or conditional licensee seeking to install a low-power MDS signal booster under this rule must, within 48 hours after installation, submit FCC Form 331 to the Commission in Washington, DC, and submit to International Transcription Services, Inc., 1231 20th Street, N.W., Washington, DC 20036, both in hard copy, and on a 3.5" computer diskette in ASCII duplicates of the Form 331 filed with the Commission, and the following (which also shall be submitted to the Commission only upon Commission staff request at any time):

(1) A description of the signal booster technical specifications (including an antenna envelope plot or, if the envelope plot is on file with the Commission, the make

and model of the antenna, antenna gain and azimuth), the coordinates of the booster, the height of the center of radiation above mean sea level, the street address of the signal booster and a description of the booster service area; and

(2) A demonstration either

(i) That the booster service area is entirely within the protected service area to which each licensee of a station whose channels are being reused is entitled by virtue of its being the licensee of an incumbent MDS station, or by virtue of its holding a Basic Trading Area or Partitioned Service Area authorization; or

(ii) That the licensee entitled to any cochannel protected service area which is overlapped by the proposed booster service area has consented to such overlap; and

(3) A demonstration that the proposed booster service area can be served by the proposed booster without interference; and

(4) A certification that no Federal Aviation Administration determination of No Hazard to Air Navigation is required under Part 17 of this chapter or, if such determination is required, either:

(i) A statement of the FCC Antenna Structure Registration Number; or

(ii) If an FCC Antenna Structure Registration Number has not been assigned for the antenna structure, the filer must indicate the date the application by the antenna structure owner to registered the antenna structure was filed with the FCC in accordance with Part 17 of this chapter; and

(5) A certification that:

(i) The maximum power level of the signal booster transmitter does not exceed -9 dBw EIRP (or, when subchannels or superchannels, or 125 kHz channels, are used, the appropriately adjusted value based upon the ratio of 6 MHz to the subchannel or superchannel or 125 kHz, bandwidth); and

(ii) Where the booster is operating on channel D4, E1, F1, E2, F2, E3, F3, E4, F4 and/or G1, no registered receiver of an ITFS E or F channel station, constructed prior to May 26, 1983, is located within a 1.61 km (1 mile) radius of the coordinates of the booster, or in the alternative, that a consent statement has been obtained from the affected ITFS licensee; and

(iii) The applicant complied with §1.1307 of this chapter; and

(iv) Each MDS and/or ITFS station licensee (including the licensees of booster stations and response station hubs) with protected service areas and/or registered receivers within a 8.0 km (5 mile) radius of the coordinates of the booster has been given notice of its installation; and

(v) The signal booster site is within the protected service area of the MDS station whose channels are to be reused, and

(vi) The aggregate power flux density of the MDS stations to be reused and all associated booster stations and simultaneously operating cochannel response stations licensed to or applied for by the applicant, measured at or beyond the boundary of the protected service areas of the MDS stations

whose channels are to be reused, does not exceed -73.0 dBw/m2 (or, when subchannels or 125 kHz channels are used, the appropriately adjusted value based upon the ratio of the channel-to-subchannel or 125 kHz bandwidths) at locations for which there is an unobstructed signal path, unless the consent of the affected licensees has been obtained; and

(vii) The antenna structure will extend less than 6.10 meters (20 feet) above the ground or natural formation or less than 6.10 meters (20 feet) above an existing manmade structure (other than an antenna structure); and

(viii) The MDS conditional licensee or licensee understands and agrees that in the event harmful interference is claimed by the filing of an objection or petition to deny, the conditional licensee or licensee must terminate operation within two (2) hours of notification by the Commission, and must not recommence operation until receipt of written authorization to do so by the Commission.

(f) Commencing upon the filing of an application for a high-power MDS signal booster station license and until such time as the application is dismissed or denied or, if the application is granted, a certification of completion of construction is filed, an applicant for any new or modified MDS or ITFS station (including a response station hub, high-power booster station, or I Channels station) shall demonstrate compliance with the interference protection requirements set forth in §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903 with respect to any previously-proposed or authorized booster service area both using the transmission parameters of the high-power MDS signal booster station (e.g., EIRP, polarization(s) and antenna height) and the transmission parameters of the MDS station whose channels are to be reused by the high-power MDS signal booster station. Upon the filing of a certification of completion of construction of an MDS booster station applied for pursuant to §21.913(b), or upon the submission of an MDS booster station notification pursuant to §21.913(e), the MDS station whose channels are being reused by the MDS signal booster shall no longer be entitled to interference protection pursuant to §§21.902(b)(3)-(5), 21.938(b)(1) and (2) and (c), and 74.903 within the booster service area based on the transmission parameters of the MDS station whose channels are being reused. A booster station shall not be entitled to protection from interference caused by facilities proposed on or prior to the day the application or notification for the booster station is filed. A booster station shall not be required to protect from interference facilities proposed on or after the day the application or notification for the booster station is filed.

(g) Where an application is granted under §21.913(d), if a facility operated pursuant to that grant causes harmful, unauthorized interference to any cochannel or adjacent channel facility, it must promptly remedy the interference or immediately cease operations of the interfering facility, regardless of whether any petitions to deny or for other relief were filed against the application during the application process. The burden of proving that a high-power MDS signal booster station is not causing harmful, unauthorized interference lies on the licensee of the alleged interfering facility, following the filing of a documented complaint of interference by an affected party.

(h) In the event any MDS or ITFS receive site suffers interference due to block downconverter overload, the licensee of each signal booster station within five miles of such receive site shall cooperate in good faith to expeditiously identify the source of the interference. Each licensee of a signal booster station contributing to such interference shall bear the joint and several obligation to promptly remedy all interference resulting from block downconverter overload at any ITFS receive site registered prior to the submission of the application or notification for the signal booster station or at any receive site sithin an MDS or ITFS protected service area applied for prior to the submission of the application or notification for the signal booster station, regardless of whether the receive site suffering the interference was constructed prior to or after the construction of the signal booster station(s) causing the downconverter overload; provided, however, that the licensee of the registered ITFS receive site or the MDS or ITFS protected service area must cooperate fully and in good faith with efforts by the signal booster station licensee to prevent interference before constructing the signal booster station and/or to remedy interference that may occur. In the event that more than one signal booster station licensee contributes to block downconverter interference at a MDS or ITFS receive site, the licensees of the contributing signal booster stations shall cooperate in good faith to remedy promptly the interference.

[redacted]

§21.923 Eligibility.

(a) Any individual or entity, other than those precluded by §§21.4 and 21.912 of this part, is eligible to receive a Basic Trading Area (BTA) authorization and a station license for each individual MDS station within the BTA[redacted]. There is no restriction on the number of BTA authorizations or MDS station licenses, including multiple co-channel station licenses, sought by or awarded to a qualified individual or entity.

(b) [redacted]

(c) [redacted]

§21.924 Service areas.

(a) MDS service areas are regional Basic Trading Areas (BTAs) which are based on the Rand McNally 1992 Commercial Atlas & Marketing Guide, 123rd Edition, at pages 38-39.

The BTA Map is available for public inspection at the public reference room, Multipoint Distribution Service, Video Services Division, Mass Media Bureau, Room 207, 2033 M Street, NW., Washington, DC.

(b) The following additions will be available for licensing separately as BTA-like areas: American Samoa; Guam; Northern Mariana Islands; San Juan, Puerto Rico; Mayaguez/Aguadilla-Ponce, Puerto Rico; and the United States Virgin Islands, and the Gulf of Mexico.

(c) The area within the boundaries of a BTA to which a BTA authorization holder may provide Multipoint Distribution Service excludes the protected service areas of any incumbent MDS stations and previously proposed and authorized ITFS facilities, including registered receive sites.

(d) The boundaries of the Gulf of Mexico BTA-like area are: (a) the inner boundary along the coast line will be the county lines of the adjacent land BTAs from the southernmost tip of Texas to the southeastmost tip of Florida, and (b) the outer boundary will be coterminous with the southern boundary of the Exclusive Economic Zone as defined in Presidential Proclamation No. 5030, extending approximately 200 nautical miles from the baseline from which the breadth of the territorial sea is measured.

§21.925 Applications for BTA authorizations and MDS station licenses.

(a) (1) An applicant must file a short-form application and, when necessary, the short-form application supplement, identifying each BTA service authorization sought.

(2) For purposes of conducting competitive bidding procedures, short-form applications are considered to be mutually exclusive with each other if they were filed for, and specified, the same BTA service area.

(b) Separate long-form applications must be filed for each individual MDS station license sought within the protected service area of a BTA or PSA, including:

(1) An application for each E-channel group, F-channel group, and single H, 1, and 2A channel station license sought;

(2) An application for each site where one or more MDS response station hub license(s) is/are sought, provided that the technical parameters of each MDS response station hub are the same;

(3) An application for each site where one or more MDS booster station(s) will operate with an EIRP in excess of -9 dBw (or, when subchannels or superchannels, or 125 kHz channels, are used, the appropriately adjusted value based upon the ratio of 6 MHz to the subchannel or superchannel, or 125 kHz bandwidth);

(4) An application for authority to operate at an MDS station in the area vacated by an MDS station incumbent that has forfeited its station license; and

(5) An application for each ITFS-channel group station license sought in accordance with §§74.990 and 74.991.

(c) The Commission shall grant BTA authorizations to auction winners as set forth in §21.958.

(d) No long-form application filed by the BTA authorization holder will be accepted prior to completion of the competitive bidding process and no long-form application will be granted until expiration of the 30-day petition to deny period following the public notice listing of the application as being accepted for filing.

(e) Applicants may use the electronic filing procedures to file both the Multipoint Distribution Service short-form and long-form applications with the Commission.

(f) The provisions of paragraph (b) of this section do not apply to applicants who are holders of a BTA authorization for the Gulf of Mexico. See 47 C.F.R. § 21.950(d).

§21.938 BTA and PSA technical and interference provisions.

(a) BTA or PSA authorization holders are expected to cooperate with one another by designing their stations in a manner that protects service in adjoining BTAs and PSAs including consideration of interference abatement techniques such as cross polarization, frequency offset, directional antennas, antenna beam tilt, EIRP decrease, reduction of antenna height, and terrain shielding.

(b) Unless the affected parties have executed a written interference agreement in accordance with §21.937, and subject to the provisions of §§21.909, 21.913, 21.940, 74.939 and 74.985 regarding the protection of response station hubs, booster service areas and 125 kHz channels from harmful electromagnetic interference, stations licensed to a BTA or PSA authorization holder must not cause harmful electromagnetic interference to the following:

(1) the protected service area of other authorization holders in adjoining BTAs or PSAs.

(2) the 56.33 km (35 mile) protected service areas of authorized or previously proposed MDS stations (incumbents).

(3) registered receive sites and protected service areas of authorized or previously proposed stations in the Instructional Television Fixed Service pursuant to the manner in which interference is defined in §74.903(a).

(c) (1) ITFS applicants may locate a new station in an unused portion of a BTA or PSA where interference to a previously-proposed or authorized MDS station of a BTA or PSA authorization holder would not be predicted.

(2) With respect to ITFS applications only and for purposes of determining the existence of harmful electromagnetic interference as caused to MDS stations licensed to BTA or PSA authorization holders by subsequently proposed ITFS stations within that BTA, MDS stations licensed to BTA and PSA authorization holders and will have a protected service area of 56.33 km (35 miles), centered on the antenna site of the MDS stations.

(3) The 56.33 km (35 mile) protected service area afforded to a previously-proposed or authorized MDS station of a BTA or PSA authorization holder with respect to a subsequently proposed ITFS station is entitled to the interference protection standards of §21.902.

(4) An ITFS station authorized before September 15, 1995 may be modified, provided the power flux density of that station does not exceed -73 dBw/m^2 at locations

along the 56.33 km (35 mile) circle centered on the then-existing transmitting antenna site or service area of collocated incumbent MDS station, as applicable.

(d) Unless the affected parties have executed a written interference agreement in accordance with §21.937, it shall be the responsibility of a BTA or PSA authorization holder to correct at its expense any condition of harmful electromagnetic interference caused to authorized MDS service at locations within other BTAs or PSAs or within the 56.33 km (35 mile) protected service areas of authorized or previously proposed ITFS and MDS stations (incumbents), or at authorized or previously proposed ITFS receive sites.

(e) Unless specifically expected, BTA or PSA authorization holders are governed by the interference protection and other technical provisions applicable to the Multipoint Distribution Service.

(f) The calculated free space power flux density from an MDS station, other than an incumbent MDS station, may not exceed -73 dBw/m2 at locations on BTA or PSA boundaries for which there is an unobstructed signal path from the transmitting antenna to the boundary, unless the applicant has obtained the written consent of the authorization holder for the adjoining BTA or PSA. The calculated free space power flux density from an MDS station located in the Gulf of Mexico, other than an incumbent MDS station, may not exceed -75 dBw/m2 at locations at BTA or PSA boundaries for which there is an unobstructed signal path from the transmitting antenna to the boundary, unless the applicant has obtained the written consent of the authorization holder for the adjoining BTA or PSA.

(g) (1) Authorization holders for BTAs or PSAs must notify authorization holders of adjoining areas of their application filings for new or modified stations; provided the proposed facility would produce an unobstructed signal path anywhere within the adjoining BTA or PSA.

(2) This service of written notification must include a copy of the FCC application and occur on or before the date the application is filed with the Commission.

(3) With regard to incumbent MDS stations, authorization holders for BTAs or PSAs must comply with the requirements of §21.902.

(h) Where a PSA adjoins a BTA and both authorizations are held by the same individual or entity, the PSA shall be considered an extension of the protected service area of the BTA regarding the interference protection, limiting signal strength, and notification provisions of this section.

§21.956 Filing of long-form applications or statements of intention.

(a) (1) Within 30 business days of being notified of its status as a winning bidder, each winning bidder for a BTA service area will be required to submit either:

(i) an initial long-form application for an MDS station license, along with any required exhibits; or

(ii) a statement of intention with regard to the BTA service area, along with any required exhibits, showing the encumbered nature of the BTA, identifying all previously authorized or proposed MDS and ITFS facilities,

and describing in detail the winning bidder's plan for obtaining the previously authorized and/or proposed MDS stations within the BTA.

(2) A winning bidder that fails to submit either the initial long-form application or statement of intention as required under this section, and fails to establish good cause for any late-filed application or statement, shall be deemed to have defaulted and will be subject to the payments set forth in §21.959(a).

(b) Each initial long-form application for an MDS station license within an auction winner's BTA service area, and each statement of intention with regard to an auction winner's BTA service area, must also include the following:

(1) FCC Form 430;

(2) an exhibit detailing the terms and conditions and parties involved in any bidding consortia, joint venture, partnership or other agreement or arrangement the winning bidder had entered into relating to the competitive bidding process prior to the time bidding was completed (see 47 C.F.R. §1.2107(d));

(3) an exhibit complying with 47 C.F.R. §§1.2110(i) and 21.960(e), if the winning bidder submitting the long-form application or statement of intention claims status as a designated entity.

(c) Subsequent long-form applications for additional MDS station licenses within the BTA service areas of winning bidders may be submitted at any time during the five year build-out period and need not contain the exhibits specified in paragraph (b)(2) through (3) of this section.

(d) [redacted]

§21.960 Designated entity provisions for MDS.

(a) Designated entities. As specified in this section, designated entities that are winning bidders for BTA service areas are eligible for special incentives in the auction process. See 47 CFR §1.2110.

(b) Installment payments. Small businesses and small business consortia may elect to pay the full amount of their winning bids for BTA service areas in installments over a ten (10) year period running from the date that their BTA authorizations are issued.

(1) Each eligible winning bidder paying for its BTA authorization(s) on an installment basis must deposit by wire transfer or cashier's check in the manner specified in §21.955 sufficient additional funds as are necessary to bring its total deposits to ten (10) percent of its winning bid(s) within five (5) business days after the Commission has declared it the winning bidder and closed the bidding. Failure to remit the required payment will make the bidder liable for the payments set forth in §21.959(a)(2).

(2) Within five (5) business days following release of the public notice stating that the BTA authorization of a winning bidder eligible for installment payments is ready to be issued, the winning bidder shall pay another ten (10) percent of its winning bid, thereby commencing the eligible bidder's installment payment plan. The Commission will issue the BTA authorization to the eligible winning bidder within ten (10) business days following notification of receipt of this additional ten (10) percent payment. Failure to remit the required payment will make the bidder liable for the payments set forth in §21.959(a)(2).

(3) Upon issuance of a BTA authorization to a winning bidder eligible for installment payments, the Commission will notify such eligible BTA authorization holder of the terms of its installment payment plan. For MDS, such installment payment plans will:

(i) impose interest based on the rate of ten (10) year U.S. Treasury obligations at the time of issuance of the BTA authorization, plus two and one half (2.5) percent;

(ii) allow installment payments for a ten (10) year period running from the date that the BTA authorization is issued;

(iii) begin with interest-only payments for the first two (2) years; and

(iv) amortize principal and interest over the remaining years of the ten (10) year period running from the date that the BTA authorization is issued.

(4) Conditions and obligations. See §1.2110(f)(4) of this chapter.

(5) Unjust enrichment.

(i) If an eligible BTA authorization holder that utilizes installment financing under this paragraph seeks to assign or transfer control of its BTA authorization to an entity not meeting the eligibility standards for installment payments, the holder must make full payment of the remaining unpaid principal and any unpaid interest accrued through the date of assignment or transfer as a condition of approval. If an eligible BTA authorization holder that utilizes installment financing under this subsection seeks to partition, pursuant to §21.931, a portion of its BTA containing one-third or more of the population of the area within its control in the licensed BTA to an entity not meeting the eligibility standards for installment payments, the holder must make full payment of the remaining unpaid principal and any unpaid interest accrued through the date of partition as a condition of approval.

(ii) If a BTA authorization holder that utilizes installment financing under this subsection seeks to make any change in ownership structure that would result in the holder losing eligibility for installment payments, the holder shall first seek Commission approval and must make full payment of the remaining unpaid principal and any unpaid interest accrued through the date of the change in ownership structure as a condition of approval. Increases in gross revenues that result from revenues from operations,

business development or expanded service shall not be considered changes in ownership structure under this paragraph.

(c) Reduced upfront payments. A prospective bidder that qualifies as a small business, or as a small business consortia, is eligible for a twenty-five (25) percent reduction in the amount of the upfront payment required by §21.954. To be eligible to bid on a particular BTA, a small business will be required to submit an upfront payment equal to seventy-five (75) percent of the upfront payment amount specified for that BTA in the public notice listing the upfront payment amounts corresponding to each BTA service area being auctioned.

(d) Bidding credits. A winning bidder that qualifies as a small business, or as a small business consortia, may use a bidding credit of fifteen (15) percent to lower the cost of its winning bid on any of the BTA authorizations awarded in the MDS auction.

(1) Unjust enrichment. See §1.2111 of this chapter.

(2) A winning bidder for the Gulf of Mexico BTA Nos. and Block B license that qualifies as a small business, or as a small business consortia, may use a bidding credit of twenty-five (25) percent to lower the cost of its winning bid on that authorization.

(e) Short-form application certification; Long-form application or statement of intention disclosure. An MDS applicant claiming designated entity status shall certify on its short-form application that it is eligible for the incentives claimed. A designated entity that is a winning bidder for a BTA service area(s) shall, in addition to information required by §21.956(b), file an exhibit to either its initial long-form application for an MDS station license, or to its statement of intention with regard to the BTA, which discloses the gross revenues for each of the past three years of the winning bidder and its affiliates. This exhibit shall describe how the winning bidder claiming status as a designated entity satisfies the designated entity eligibility requirements, and must list and summarize all agreements that affect designated entity status, such as partnership agreements, shareholder agreements, management agreements and other agreements, including oral agreements, which establish that the designated entity will have both de facto and de jure control of the entity. See 47 CFR §1.2110(i).

(f) Records maintenance. All holders of BTA authorizations acquired by auction that claim designated entity status shall maintain, at their principal place of business or with their designated agent, an updated documentary file of ownership and revenue information necessary to establish their status. Holders of BTA authorizations or their successors in interest shall maintain such files for a ten (10) year period running from the date that their BTA authorizations are issued. The files must be made available to the Commission upon request.

(g) Audits. BTA authorization holders claiming eligibility under designated entity provisions shall be subject to audits by the Commission, using in-house or contract resources. Selection for an audit may be random, on information, or on the basis of other factors. Consent to such audits is part of the certification included in the short-form application. Such consent shall include consent to the audit of the holders' books, documents and other material (including accounting procedures and practices), regardless of form or

type, sufficient to confirm that such holders' representations are, and remain, accurate. Such consent shall also include inspection at all reasonable times of the facilities, or parts thereof, engaged in providing and transacting business or keeping records regarding licensed MDS offerings, and shall also include consent to the interviewing of principals, employees, customers, and suppliers of the BTA authorization holders.

(ix) Gulf of Mexico BTA-like area Block A license set-aside. Only small businesses, as defined in §21.961(b), are eligible to participate in the auction for the Gulf of Mexico BTA-like area Block A licenses.

§21.961 Definitions applicable to designated entity provisions.

(a) Scope. The definitions in this section apply to §21.960, unless otherwise specified in that section.

(b) Small business; consortium of small businesses

(1) A small business is an entity that together with its affiliates has average annual gross revenues that are not more than $40 million for the preceding three calendar years. For the Gulf of Mexico BTA-like area Block A and Block B licenses, a small business is an entity that together with its affiliates has average annual gross revenues that are not more than $30 million and average annual total assets that are not more than $75 million for the preceding three calendar years at the time of the filing of the short-form application. Total assets means the book value (except where generally accepted accounting principles (GAAP) require market valuation) of all property owned by an entity, whether real or personal, tangible or intangible, as evidenced by the three most recent annual audited financial statements or certified by the applicant's chief financial officer or their equivalent if the applicant does not otherwise use audited financial statements.

(2) Aggregation of gross revenues

(i) Except as specified in paragraph (b)(2)(ii) of this section, the gross revenues of the applicant (or BTA authorization holder) and its affiliates shall be considered on a cumulative basis and aggregated for purposes of determining whether the applicant (or holder) is a small business.

(ii) Where an applicant (or BTA authorization holder) is a consortium of small businesses, the gross revenues of each small business shall not be aggregated.

(3) A small business consortium is a conglomerate organization formed as a joint venture between mutually-independent business firms, each of which individually satisfies the definition of a small business.

(4) Aggregation of gross revenues and total assets for the Gulf of Mexico BTA-like area Block A and Block B licenses.

(i) Except as specified in paragraph (b)(2)(ii) of this section, the gross revenues and total assets of the applicant (or BTA authorization holder) and its affiliates shall be considered on a cumulative basis and aggregated for purposes of determining whether the applicant (or holder) is a small business.

[redacted]

(c) Gross revenues shall mean all income received by an entity, whether earned or passive, before any deductions are made for costs of doing business (e.g., cost of goods sold), as evidenced by audited financial statements for the preceding relevant number of calendar years, or, if audited financial statements were not prepared on a calendar-year basis, for the preceding relevant number of fiscal years. If an entity was not in existence for all or part of the relevant period, gross revenues shall be evidenced by the audited financial statements of the entity's predecessor-in-interest or, if there is no identifiable predecessor-in-interest, unaudited financial statements certified by the applicant as accurate.

(d) The definition of an affiliate of an applicant is set forth in 47 CFR §1.2110(b)(4).

PART 74

SUBPART I -- INSTRUCTIONAL TELEVISION FIXED SERVICE

§ 74.902 Frequency assignments.

(a) The following frequencies may be assigned to instructional television fixed stations:

Channel No.	Band limits (MHz)
	GROUP A
A-1	2500-2506
A-2	2512-2518
A-3	2524-2530
A-4	2536-2542
	GROUP B
B-1	2506-2512
B-2	2518-2524
B-3	2530-2536
B-4	2542-2548
	GROUP C
C-1	2548-2554
C-2	2560-2566
C-3	2572-2578
C-4	2584-2590
	GROUP D
D-1	2554-2560
D-2	2566-2572
D-3	2578-2584
D-4	2590-2596
	GROUP E
E-1	2596-2602
E-2	2608-2614
E-3	2620-2626
E-4	2632-2638
	GROUP F
F-1	2602-2608
F-2	2614-2620
F-3	2626-2632
F-4	2638-2644
	GROUP G
G-1	2644-2650
G-2	2656-2662
G-3	2668-2674
G-4	2680-2686

(b) Instructional Television Fixed Stations authorized to operate on Channels 2650-2656, 2662-2668, and 2674-2680 MHz as of July 16, 1971, may continue to operate on a coequal basis with other stations operating in accordance with the Table of Frequency Allocations. Requests for subsequent renewals or modification of existing licenses will be considered; however, expansion of systems comprised of such stations will not be permitted except on frequencies allocated for the service.

(c) Channels 2596-2602, 2602-2608, 2608-2614, 2614-2620, 2620-2626, 2626-2632, 2632-2638, and 2638-2644 MHz and the corresponding 125 kHz channels listed in §74.939(j) are shared with the Multipoint Distribution Service.[1] No new Instructional Television Fixed Service applications for these channels filed after May 25, 1983 will be accepted, except in accordance with §74.902(f). In those areas where Multipoint Distribution Service use of these channels is allowed, Instructional Television Fixed Service users of these channels will continue to be afforded protection from harmful cochannel and adjacent channel interference from Multipoint Distribution Service stations pursuant to §21.902.

(d) Frequencies will be assigned as follows:

(1) A licensee is limited to the assignment of no more than four 6 MHz and four 125 kHz channels for use in a single area of operation, all of which 6 MHz channels initially should be selected from the same Group listed in paragraph (a) of this section, but which later may come from different Groups as a result of authorized channel swaps pursuant to §74.902(f). An area of operation is defined as the area 35 miles or less from the ITFS main station transmitter. Applicants shall not apply for more channels than they intend to construct within a reasonable time, simply for the purpose of reserving additional channels. The number of channels authorized to an applicant will be based on the demonstration of need for the number of channels requested. The Commission will take into consideration such factors as the amount of use of any currently assigned channels and the amount of proposed use of each channel requested, the amount of, and justification for, any repetition in the schedules, and the overall demand and availability of ITFS channels in the community. For those applicant organizations formed for the purpose of serving accredited institutional or governmental organizations, evaluation of the need will only consider service to those specified receive sites which submitted supporting documentation pursuant to §74.932(a)(4).

(2) An applicant leasing excess capacity and proposing a schedule which complies in all respects with the requirements of Section 74.931(c) or (d) will have presumptively demonstrated need, in accordance with paragraph (d)(1) of this section, for no more than four channels. This presumption is rebuttable by demonstrating that the application does not propose to comport with our educational programming usage requirements, that is, to transmit some formal educational usage, as defined in Section 74.931(a), and to transmit the requisite minimum educational usage of §74.931(c) or (d) for genuinely educational purposes.

(e) Frequencies in the bands 2500-2650 MHz, 2656-2662 MHz, 2668-2674 MHz, and 2680-2686 MHz are available for point-to-multipoint use and/or for communications between ITFS response stations and response station hubs when authorized in accordance with the provisions of §74.939, provided that such frequencies may be employed for ITFS response stations only when transmitting using digital modulation. The same channel may be assigned to more than one station or more than one licensee in the same area if the geometric arrangement of the transmitting and receiving points or the times of operation are such that interference is not likely to occur.

(f) An ITFS licensee or conditional licensee may apply to exchange evenly one or more of its assigned channels with another ITFS licensee or conditional licensee in the same system, or with an MDS licensee or conditional licensee in the same system where one or both parties utilizes digital transmissions or leases capacity to an operator which utilizes digital transmissions, except that an ITFS licensee or conditional licensee may not exchange one of its assigned channels for MDS channel 2A. the licensees or conditional licensees seeking to exchange channels shall file in tandem with the Commission separate pro forma assignment of license applications, each attaching an exhibit which clearly specifies that the applicztion is filed pursuant to a channel exchange agreement. The exchanged channel(s) shall be regulated according to the requirements applicable to the assignee; provided, however, that an ITFS licensee or conditional licensee which receives one or more E or F Group channels through a channel exchange with an MDS licensee or conditional licensee shall not be subject to the restrictions on ITFS licensees who were authorized to operate on the E or F Group channels prior to May 26, 1983.

(g) A temporary fixed ITFS station may use any available ITFS channel on a secondary basis. Operation of stations located within 56.3 km (35 miles) of Canada shall be limited by §74.24(h)(3).

(h) Where adjacent channel operation is proposed in any area, the preferred location of the proposed station's transmitting antenna is at the site of the adjacent channel transmitting antenna. If this is not practicable, the adjacent channel transmitting antennas should be located as close as reasonably possible.

(i) On the E and F-channel frequencies, a point-to-point ITFS station may be involuntarily displaced by an MDS applicant, conditional licensee or licensee, provided that suitable alternative spectrum is available and that the MDS entity bears the expenses of the migration. Suitability of spectrum will be determined on a case-by-base basis; at a minimum, the alternative spectrum must be licensable by ITFS operators on a primary basis (although it need not be specifically allocated to the ITFS service), and must provide a signal that is equivalent to the prior signal in picture quality and reliability, unless the ITFS licensee will accept an inferior signal. Potential expansion of the ITFS licensee may be considered in determining whether alternative available spectrum is suitable.

(j) If suitable alternative spectrum is located pursuant to paragraph (h) of this section, the initiating party must prepare and file the appropriate application for the new spectrum, and must simultaneously serve a copy of the application on the ITFS licensee to be moved. The initiating party will be responsible for all costs connected with the migration,

including purchasing, testing and installing new equipment, labor costs, reconfiguration of existing equipment, administrative costs, legal and engineering expenses necessary to prepare and file the migration application, and other reasonable documented costs. The initiating party must secure a bond or establish an escrow account to cover reasonable incremental increase in ongoing expenses that may fall upon the migrated licensee. The bond or escrow account should also account for the possibility that the initiating party subsequently becomes bankrupt. If it becomes necessary for the Commission to assess the sufficiency of a bond or escrow amount, it will take into account such factors as projected incremental increase in electricity or maintenance expenses, or relocation expenses, as relevant in each case.

(k) The ITFS party to be moved will have a 60-day period in which to oppose the involuntary migration. The ITFS party should state its opposition to the migration with specificity, including engineering and other challenges, and a comparison of the present site and the proposed new site. If involuntary migration is granted, the new facilities must be operational before the initiating party will be permitted to begin its new or modified operations. The migration must not disrupt the ITFS licensee's provision of service, and the ITFS licensee has the right to inspect the construction or installation work.

(l) In the Gulf of Mexico, the frequencies from 2500-2686 MHz shall be reserved for the exclusive use of MDS licensees and shall not be available to ITFS licensees.

fn1 No 125 kHz channels are provided for Channels E3, E4, F3 and F4, except for those grandfathered. The 125 kHz channels associated with Channels E3, E4, F3, and F4 are allocated to the Private Operational Fixed Point-to-Point Microwave Service, pursuant to §101.147(g) of this chapter.

CERTIFICATE OF SERVICE

I, Katrina Blackwell, an employee of Myers Keller Communications Law Group, hereby certify that on this 23th day of November, 1998, I caused to be mailed by first class U.S. mail, postage pre-paid, a copy of the forgoing AMENDED PETITION FOR RULE MAKING to the following:

Roy Stewart, Chief*
Mass Media Bureau
Federal Communications Commission
1919 M Street, NW, Room 314
Washington, DC 20554

Barbara Kreisman, Chief*
Video Services Division
Mass Media Bureau
Federal Communications Commission
1919 M Street, NW, Room 702
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